

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1607.—Vol. XXXVI.

LONDON, SATURDAY, JUNE 9, 1866.

(STAMPED.....SIXPENCE.
(UNSTAMPED.....FIVEPENCE.)

MR. JAMES CROFTS, STOCK AND SHAREBROKER

No. 1, FINCH LANE, CORNHILL.
(Established 23 years.)

The MINING MARKET is every day becoming more favourable for investments. The standard for copper has again fallen, and banks collapsing, and in consequence shares in copper mines must further recede in value. The mines most affected, but safe as prospective investments, are DEVON CONSOLS, CLIFFORD, SOUTH CARADON, WEST SETON, HIGGONSTON, DOW, WHARF, BASSET, EAST BREA, MARKS VALLEY, FRONTO, UNITED, and EAST CARADON, which mines sold nearly 20,000 tons of ore in the last quarter, ending March. There is a further good selection in mines selling lesser quantities, as NORTH TREKERRY, EAST ROSEWARNE, EAST RUSSELL, WEST CARADON, SOUTH CONDUROW, and CARN CAMBORNE. Other mines recommended for immediate purchase are GREAT LAXEY, TINCROFT, GREAT VOR, EAST LOVELL, SOUTH DARREN, PRINCE OF WALES, and WHEAT CREBOR.

Mr. Crofts has SPECIAL BUSINESS in CHONTALES, MINERAL RIGHTS, HOLLYBUSH COAL, and LILLY SLATE shares.

Bankers: National Bank of Scotland, Finch-lane.

MR. JAMES LANE, No. 44, THREADNEEDLE STREET, LONDON, E.C.

JAMES LANE has FOR SALE at net prices:—5 Basset and Grylls, 30s.; 20 Camborne Vean, 30s.; 50 Crebor, 12s. 9d.; 20 Chiverton, £6¼; 50 Calbeck Fells, 20s.; 10 Clifford, £6¼; 20 Chontales, £2¾; 50 Central Snailbeach, 28s. 6d.; 20 Central Miners, £3; 20 East Caradon, £6¾; 50 East Walls, 7s. 6d.; 50 East Jane, 3s.; 20 East Carn Brea, 25s.; 10 East Rosewarne, 24s.; 5 East Lovell, £2¾; 10 Frank Mills, £4¼; 50 Frontino and Bolivia, 17s. 9d.; 30 Great Busy, 11s.; 5 Great Laxey, £21¼; 50 Great North Laxey, 37s. 6d.; 70 Great South Chiverton, 7s. 9d.; 10 Hallenbeagle; 5 Great Wheal Vor, £17¾; 10 Marke Valley, £2¾; 5 Maundlin, 40s.; 10 North Jane, 5s.; 20 North Trekerby, £2¾; 20 New Wheal Lovell, 10s. 6d.; 5 North Roekear, £4; 20 Prince of Wales, 11s.; 500 Rossa Grande, 3s.; 20 Rosewarne United, 20s.; 100 Royallton, 11s.; 20 Rosewell Hill and Hanson United, 20s.; 20 Rosewarne Consols, 28s.; 10 South Condurow, 25s.; 5 South Crofty, £13¼; 10 Trencrom, £2¾; 100 Vale of Towy, 1s.; 10 Wheal Sparrow, 40s.

MR. LEAN (Member of the Mining Exchange) BUYS and SELLS ENGLISH and FOREIGN STOCKS and SHARES, INSPECTS MINES, and advises parties who consult him.

Bankers: Roberts, Labcock, and Co., Lombard-street.

11, Royal Exchange, London, E.C.

MR. LEAN'S STOCK, SHARE, AND FINANCE REGISTER for June, published on the 6th instant, should be consulted by all who wish to make safe and profitable investments, giving 10 per cent. and upwards; to review the state of the markets for the preceding month; and to see the causes and consequences of the panic clearly stated. Single copies, 6d. each; annual subscription, 8s. Published monthly, and sold by Messrs. Pottier and Son, 14 and 15, Royal Exchange, London, E.C.

GEORGE RICE, SHAREDEALER, 5, COWPER'S COURT, BIRCHIN LANE, LONDON (23 years' experience), Member of the Mining Exchange, DEALS largely in MINING SHARES, as BUYER or SELLER, at closest market prices.

GEORGE RICE will BUY, at the highest market prices, for cash down, SHARES in the FOLLOWING MINES:—
Chiverton Moor. East Lovell. Prince of Wales.
Chiverton. Frontino (Gold). St. John del Rey (Gold).
Chontales (Gold). Great Wheal Vor. Wheal Grenville.
Clifford. Marks Valley. West Chiverton.
East Grenville. Nangles. Wheal Crebor.
East Caradon. North Trekerby.
Money lent on mining shares.
Bankers: Bank of England.

June 8, 1866.

GEORGE RICE, 5, COWPER'S COURT, LONDON, deals extensively, at close prices, as BUYER or SELLER, in the Chontales, Frontino, and other Gold Mines, and is always prepared to advise his friends when to buy or sell out.

MR. WILLIAM SEWARD, STOCK AND SHAREDEALER, 19, THROGMORTON STREET, LONDON, E.C.

MR. G. D. SANDY, STOCK AND SHAREDEALER, No. 48, THREADNEEDLE STREET, LONDON, E.C., TRANSACTS BUSINESS in EVERY DESCRIPTION of STOCK EXCHANGE SECURITIES, MINING and FINANCIAL ENTERPRISES, at close market prices. Correct Daily Price List may be had on application. Money advanced to any amount on legitimate stocks and shares. References exchanged.

Mr. SANDY's Circular for the present month will be ready on the 12th inst.

MR. JAMES HUME, 74, OLD BROAD STREET, LONDON, (Member of the Mining Exchange).

Mr. Hume has FOR SALE:—
10 East Caradon, £8¼.
10 East Carn Brea, £1¼.
100 Prince of Wales, 10s.
50 Calbeck Fells, 20s.
10 Great Vor, £17¾.
5 Great Vor, £17¾.
20 No. Trekerby, £2¾.
10 Clifford, £6¼.
20 South Condurow, £1¼.
50 Chontales, £2¾.
50 New Treleigh (8s. call).
20 Central Snailbeach, 28s.
20 Penhale Wheal Vor.
10 Ganton, £2 18s.
20 East Snaefell, 40s.
15 East Laxey, 40s.
10 Reliance Laxey, £4.
50 Great Laxey, £21¼.
60 Frontino, 17s. 6d.
60 Frontino, 17s. 6d.
20 Penhale Wheal Vor.
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Original Correspondence.

WORKING COAL BY LONG FACE.

SIR.—The duration of our coal fields is a question which appears to engage the attention of many writers in the *Mining Journal* at the present time, not that there appears any new feature connected therewith, excepting that the duration of such present estimates are short as compared with estimates already given at various periods by different authorities, who appear to have given this subject their attention, and, from the position which they have held in the coal trade, have been looked upon as men well informed on this question. But, whatever the estimated period may be, it certainly belongs to the present age either to facilitate or retard its consummation; and, being a question (as acknowledged) of such importance, it becomes necessary for all connected with its production to pursue that course which is calculated to economise the yield of our various coal fields. The modes or systems of working or getting coal have varied in each successive age, from the commencement of coal mining up to the present time, such alterations being consequent on the introduction of progressive improvements connected therewith, and from difficulties arising from contingencies attending increased mining operations, as well as having the object in view of procuring an article of the greatest possible commercial value, and the largest amount of merchantable coal from a given area, each of which may be considered sufficient to warrant the adoption of any scheme calculated to obtain such important results. Yet, notwithstanding the evident and manifest desire that exists to adopt means whereby coal mines may be rendered as profitable and remunerative as they can practically be made, it is to be feared that the subject of adopting the most suitable mode of working coal does not obtain that thought and attention which it merits. We are led to make this observation by observing modes and systems followed of working coal which may be considered peculiar to the district or locality in which we find them in operation, rather than to the peculiarities or circumstances of the seam itself; and further, we may notice that such is persevered in to the prejudice of the claims and merits of other systems that might prove highly remunerative if allowed to be adopted.

Now, as prejudices of every character are inimical to the advantages and prosperity of all establishments, it may not be too much to assume that the advantages and benefits are not realised that would accrue if systems or suitable modifications were adopted to meet those circumstances or contingencies under which all mines, more or less, exist, rather than follow in the track of local routine any system whose principal merits may rest only in being most accustomed to it; for it is obvious that if any system be persevered in that would prove advantageous to alter to some other, it can only be followed and carried out at the expense of the merits and benefits calculated to arise from the adoption of such suitable modification.

The knowledge and experience possessed by the mining faculty generally is sufficient to place this question beyond the possibility of incurring any considerable expense in testing by trial the claims and merits of those different modes of getting coal suitable to the circumstances of the mine, or the locality it may be placed in. I should not advise incurring any considerable expense in experimenting upon any question or scheme not accurately understood, or at least clearly comprehended. But seams of coal are generally found beset and attended by circumstances of such a varied character as to render it necessary to alter and modify the general features of any scheme followed generally in working, and such may assume a character sufficient to warrant the abandonment of the system itself, and the adoption of one totally different in character, in which case time alone decides. The necessity of accommodating a mode to the circumstances of the mine itself rather than attempt to force a system against it. It has been sometimes a matter of controversy as to the relative merits of the different systems at present followed; this, as a question resting on attendant incidents of so dissimilar a character, may claim a preference for one mode over all others, according to the circumstances under which it may be adopted; yet, nevertheless, it still remains a question worthy the attention of all interested, to consider the claims of each particular mode, all other things being considered.

Having had considerable practical experience in the different modes followed at the present day, from which I venture to express myself in favour of the long work system, with its various modifications to adapt itself to the seam of coal wrought, in preference to the ordinary pillar and stall; yet let it be understood that, under certain and special circumstances, I would adopt the latter in preference to the former, but such may be taken as being more exceptional than general. I have often observed the nearer the pillar and stall system in its modification approaches to the long work, the more economically, consequently more beneficially, the coal is wrought. In the North of England the pillar and stall is almost universal. The oldest schemes were to work away the coal by bords driven as near to each other as the weight of the superincumbent strata would permit, that part left between such bords being intended to be sacrificed: in many cases the loss sustained by this mode could not be less than from 40 to 50 per cent. on the acreage. After this, and contemporaneous with the introduction of the safety-lamp, pillars were formed and left of size sufficient to protect it from any great pressure from the strata above, with the object of returning for working the same wholly away; the coal, by this means, has been got at a very small percentage of loss on the acreage, but has suffered greatly by the very large percentage of small coal produced, such being, in a great many instances, in some of the rich bituminous coal mines in Durham and Northumberland, equal to 40 per cent. This loss is occasioned principally by the smallness of the pillar left, as compared with the weight and nature of the overlying strata. To obviate the great loss arising from such, a mode has subsequently been adopted in many collieries of leaving these pillars as large as the safety and convenience of the ventilation and other circumstances will permit, and has proved to be highly advantageous, such modification tending or approaching to the principles of long work. Long work has generally been wrought by means of pack-gates through the gob. Taken, a length of face of coal, unbroken by any previous workings entirely away at one operation, but such is not an essential in the system. Coal may be wrought by long work, either by pack-gates or by openings driven at convenient distances, according to the nature and texture of the overlying strata. This is a question that, by observation and judicious management, will suggest its own modification. Yet I may venture to assert that in all cases where the coal is of a tender yielding nature, or of open distinct cleavage, it is necessary to work it in such a position as to present the line of cleavage at right angles to the working face, or what is usually termed end-on, such face being the line of resistance to the weight of the strata above, for however successful you may be in protecting your coal as a mass, or your roads, you cannot equally protect the working face from its influence more or less; and when such face, or line of resistance to the pressure exerted by the strata above, is presented in a line with the cleavage, it must necessarily follow that such will tend to open at every parting or facing, thus destroying the compactness of the coal itself, and reducing it to a mass of strakey and shaly coal. Now, this is greatly, and in many places entirely, obviated by the end-on mode of getting coal by long work, producing a more compact carriage-bearing coal, enhancing its value in the market, as well as reducing the produce of slack or small coal to a comparatively small percentage, which in itself is a very important result. This may be considered as having reference more particularly to soft coals, or those of any texture that have their lines of cleavage near to each other, rather than to those of a more hard, indurate coal, whose face lines or cleavage are at some distance from each other, and not at all defined by lines of foreign matter; for in all cases where the end-on mode is adopted the price per ton for labour in getting it is more than in the ordinary face-on mode. Although this advance has to be made in the former case of soft coals, it will bear a most favourable comparison in its results; while in the latter the advance would require to be proportionably higher in most cases, and the results would be proportionably less.

Opinions held as to the superiority of any one scheme over another ought in all cases to be formed from practical experience and tangible results, for it is only by such that convictions in the value of any scheme connected with our daily avocations can be made self-evident.

As an example of enhancing the value of a seam of coal by adopting a system suiting its condition, I may state that at a colliery in Yorkshire, in the Haigh Moor seam, the system of long work on the end was introduced, in place of the ordinary mode of driving bord-gates out and banks home, which has resulted, in addition to a considerable increase on the produce per acre, in reducing the quantity of slack fully 12 per cent., which at a difference of price of 4s. per ton will amount to 2l. 8s. increase on the sale of every 100 tons; and in addition to which a coal of a more compact character is obtained, consequently more able to bear carriage without falling to pieces before it reaches its destination. Anyone who has had the opportunity of observing the unloading of coals at their destination cannot

but have noticed the waste amongst them, occasioned by so large an amount of small coal (almost dust) that is found regularly mixed through them, presenting the appearance of unscreened coals.

In long work, either bord or end on, it has generally been (as I noticed before) a practice to carry out the system by means of packed roads through the gob, and, no doubt, when the conditions of the mine are such as are favourable to the same, it is, perhaps, of all other modes of long work the most advantageous. The circumstances generally attending a great many of the mines of Derbyshire, Nottinghamshire, Leicestershire, and Yorkshire, appear to favour this practice, by which mode they are so successfully and satisfactorily wrought; but yet in the above counties, as well as in others, peculiar attending circumstances under which to attempt to enforce the same system could only result in useless expense and disappointment. Where packed gates are not convenient, it will be found often advantageous to drive heads the required distance, and open off a length of face to each head, such length requiring to be adjusted by the thickness of the seam of coal. In seams of 6 feet, or near to it, perhaps 30 yards of face will be found to be sufficient, so as to allow the coal produced in that length to be got out quickly, and thus enable the face to be pushed forward in time sufficient to escape the gradual approaching weight from the gob behind. This will be found to affect all conditions of long work, and experience, based on observation, is the only rule that can be followed in adjusting the length of face to the conditions of the mine. I had my attention called to a case which may tend to show partly the necessity of having the face of the coal in proper lengths. In a seam of coal 5½ ft. thick, a stall with a length of face of 54 yards had only one packed gate-road into it, in consequence of which the stall could not be driven forward quicker than 1½ yard per week; this caused it always to have the full pressure of the gob upon the face, which proved very destructive of timber, and resulted at last in falling across nearly the whole length, destroying most of the timber. After many attempts to recover the face, and as often failing, I decided at last to divide the distance into two 27-yard stalls, by striking out of the main gate a branch one, thus getting two roads into it, with two sets of men, by which the face has been removed three yards per week, obtained double the weight of coal per day from this length. It has been driven in this manner now for 25 yards, and there has never been the least inconvenience felt during that time. Short stalls are capable of producing more coals per day per length of face than can be sent from long stalls in seams of 5 feet and upwards, as from experience I find that a set of men in a 30-yard stall can send as many coals per day from it as another set can send from a 40-yard stall, with advantage to themselves and a saving of timber to the owners. The expense of keeping the gates in repair may be thought to increase in the ratio that the length of face decreases, in consequence of there being more gates in a long length of face; but, owing to greater regularity of the settling of the gob, occasioned by the face being removed quicker. I am strongly of opinion that short faces of coal will make better, and consequently easier, repaired gates than long lengths. Another feature connected with this operation as a protection for the timber in stalls is to work a long length by step work, one stall being driven in advance of the next following to such distances to be proportionate to the practical forming of an air-way from one stall to another. This form of working by stepwork affords a protection from any very excessive weight being thrown upon the face, and will enable the length of coal face to be extended to any distance; one stall being by this means at a sufficient distance in advance of another tends to protect each stall from that extraneous pressure which could not fail to exert itself if the face were of an even straight length.

In the first stage of this operation, care and judicious supervision is an essential to its ultimate success; for, from the first opening out of a length of coal, whatever that length of face may be, it is generally attended with no difficulty, and very little inconvenience, until what is termed the first weight comes, this being the first break made in the superincumbent strata above, by which the whole weight of this strata is brought to bear on the packs made for its support, and the timber used for protecting the face, the whole of which is generally sacrificed when this takes place, and to restore all to a proper working order again requires often much time and attention, and constitutes one of the principal difficulties attending long work. This first break has, I believe, been the means of discontinuing the scheme in many instances, and has done more towards retarding its adoption as a system generally than any other objection that has been arrayed against it. For, although where it is not practicable or convenient to form and maintain gob-roads (gates), heads can be driven, and the coal in the same long face by step work brought back, leaving the gob and its inconvenience behind. Yet I would advise, where the circumstances are of such a character as to permit of gob-roads being made and maintained at a reasonable outlay and cost, to work the coal by them, in preference to driving heads, for such cuts up the coal, an operation greatly to be avoided, and in doing which we claim a preference for long work, as being the most effectual means of preserving the coal from being broken up into small fragmentary pieces, so as to render a large proportion of it unsuitable for market, and reducing its value accordingly as a merchantable article.

A very important adjunct to this system has been recently applied to effect a saving of the material from breakage, so as to reduce the production of slack or small coal to a minimum—I mean the employment of coal-cutting machines. These machines are, no doubt, destined to effect a great revolution in coal and ironstone mining; the results which they are calculated to produce are sufficient to warrant their adoption in all seams where they can be practically applied. Apart from any saving they may effect in the cost of production, which will be considerable in many cases, the saving alone of the material will enhance its value, so as to employ them at a profit. Moreover, there are many thin seams of coal, at present worthless, which may be, by the aid of these machines, rendered workable at a profit, and to such appliances do we look forward as the only means whereby our coal fields can be made productive for the longest duration; for it may prove wiser at present, and in future, to render available for merchantable purposes all coal at present known in thin seams, and to work both them and all other coal in a manner so as to effect the greatest saving from breakage, than to depend for our further supply for coal, after recklessly sacrificing a great portion of it, at fabulous depths, under the Permian formation, which may prove ultimately to be not so productive of coal as many have imagined it to be. This being a question foreign to the subject under consideration, I shall return to it at some future time.

Kippax, Yorkshire, June 5.

C. HODGSON.

MINING PROSPECTS IN BRAZIL.

SIR.—In 1824 or 1825 the Emperor of Brazil granted a decree, authorising English companies to purchase "*Lavras abandonadas*,"—abandoned mines or gold washings. As was to be expected, this was the mere prelude to the liberty of buying mines in actual produce, but it was a most unhappy mode of expression. It was a most unhappy mode of expression, because to the minds of most men it conveyed the idea tantamount to saying "mines that are worth nothing," and thus it turned out. The first mining companies never deigned the slightest investigation of the wealthy Cordillera of Ouro Preto. It has been reserved for the manager, Capt. Thomas Treloar, of the two mining companies now established—the Don Pedro North del Rey and the Anglo-Brazilian Gold Company—to dispel the illusion that this Cordillera, as to its riches, is a mere thing of the past, that it has had its day, and that from Dan to Beersheba all is barren. The dispelling of such illusions is no slight proof of the progress of ideas, and the attention of English capitalists will henceforth be attracted to the development of the immense resources of the long-neglected district of Minas Gerais. The auriferous formations, both of rock and jacotings, of this Cordillera can be traced from Velloso to Camargos, a distance of five leagues (twenty miles). History attests to the accounts of the riches extracted, and to us, reaching them now, they appear to be fabulous. Some years ago a German geologist, then the Government engineer, gave it as his opinion that the whole of the Cordillera ought to be taken up by English mining companies.

It is my opinion that the jacotings formation is the effervescence of the upheavings of nature in remote ages, by the action of subterranean heat, from some unknown matrix, and that afterwards it was spread by aqueous influences over a vast tract of country. It is difficult to know whether the jacotings formations be only deposits on non-auriferous rocks, or whether they be deposits resting on auriferous lodes. A German geologist, Mr. Hockeder, gave it, I believe, as his opinion that the Gongo Soco jacotings rested on limestone. Judging from the features of Maquiné, and of other parts of the Ouro Preto Cordillera, I incline to the belief that the Maquiné jacotings, whenever it comes to an end, will be found to rest on the general auriferous rock formations which run through the said Cordillera.

These upheavings of auriferous formations exist in abundance all along the Cordillera, and the surface, generally speaking, has been riddled by

the early gold explorers in the Californian epoch of Brazilian mining. But by the discovery made at Maquiné, by the Don Pedro North del Rey Company, we have a proof that, even with all the avidity of the early gold explorers, there are still points even at the surface which have escaped their ravages. The Don Pedro North del Rey Company possess a noble property in the Cordillera in question, in the Morro de Santa Anna Mines. Their manager, years and years ago, maintained the conviction that gold existed in the jacotings formation at Maquiné, and, under many baffling attempts, has succeeded in putting on a palpable basis the evidence of the correctness of his ideas. Maquiné, whilst it does credit to his judgment, will surely be a source of enormous wealth to the company. When there last month, the samples taken and washed in my presence were truly splendid. This I saw; and now, referring my readers to the printed reports, it is there substantiated that the vein averaged 220 oits. of gold to the ton of stuff. The produce for the month, from this place alone, was 6000 oits., 2000 of which were extracted in three days. It has to be borne in mind that the mine is only just being opened from the surface. The nature of the Cordillera is such that veins of gold may be found which may astonish the mining world. So far as now seen the features are of so gratifying a description that I do not think it any exaggeration to suppose that Maquiné alone, even if it lasts only ten years, will afford a net profit of more than a million sterling. Besides the beds of jacotings at Maquiné, this company have other beds of jacotings at Tambor and Matador. The Anglo-Brazilian Gold Company also possess a noble property in this Cordillera in the Passagene Mines, and, when the well-planned measures for developing them are fully carried out, such an immensity of ground will be opened and drained that good dividends must be the inevitable result for a very long series of years—perhaps, 100 years.

These companies, I believe, will have to record with gratitude the eminent services of their present manager. He had to begin everything, and from a chaos he is bringing everything into excellent order, and this could only be effected by good administrative talent, practical knowledge, and the vigilant supervision which he exercises over the minutest matters affecting the well being of the establishments.

Adjoining the Anglo-Brazilian Gold Company's property are the mines of Padre Faria, Velloso, &c., and these probably are the richest in the Cordillera; rich auriferous veins abound in these mines. These veins converge to centres, and these centres manifestly converge to a common centre in the mountain; the latter cannot be very distant from the old workings, but it has not yet been reached, and the configuration of the mountain, and other circumstances, lead to the conclusion that this common centre is a rock formation, larger, richer, and more easy to be worked than the rock formation at Morro Velho, belonging to the St. John del Rey Company. Some of the stone ore when these mines were last worked yielded 70 ozs. of gold to a ton by assay, and the stone generally as stamped yielded 7 to 9 oits. of gold per ton, but the present owners are doing nothing to turn this valuable property to account. Adjoining the Don Pedro North del Rey property are the mines of Bomquiné and Taquara Lucimada, where a struggle is going on as to who are the legal owners.

My present paper already exceeds the limits I had assigned to it, so I will only add that all this—yes, all this rich Cordillera was, thus to speak, under the ban of the empire from 1825 to 1863, arising from the ill-fated expression in the decree—"Lavras abandonadas." Let us hope for a triumphant refutation of this unfortunate misnomer, by the speedy introduction of British capital to extract the hidden wealth of this Cordillera. I believe that it will be so; I believe that, sooner or later, the whole of the Cordillera will be taken up by numerous mining companies, or by one immense company having numerous branches.

J. O.

April 26.

BOILER EXPLOSIONS—INSURANCE.

SIR.—I noticed with much regret four boiler explosions reported in last week's *Journal* as having taken place at mines and collieries—two caused loss of life, two caused serious personal injury, and all caused great loss of property. I do not see that any one boiler was insured or under inspection. I am astonished at the apathy shown by many boiler users in respect to the great advantages offered by the leading insurance companies, as providing regular inspection by thoroughly competent people, securing the repayment of the value of the boiler when insured in case of explosion; and in one case, that of the National, giving a reduction of 10 per cent. on the premiums for using Smith's Safety-Plug, which reduces the chances of explosion to a minimum. I am perfectly confident that had one of these plugs been in one of the boilers which exploded no explosion would have taken place, while in all cases, had they been insured, their users would have received compensation—a trifling help towards their loss.

June 7.

T. L. COTTINGHAM.

SUBMARINE TUNNELS.

SIR.—Nearly 13 years ago you did me the favour of giving insertion in the *Mining Journal* to a communication on "Iron Submarine Tunnels." The idea at that time probably appeared chimerical to many, but it seems that we may yet live to see a submarine communication established between France and England. According to the public papers, M. Thémé de Gamond is engaged with a body of engineers, by direction of the Emperor of the French, in devising or verifying plans, &c., for the construction of a work of the kind.

If I may venture an opinion, the project of cutting a tunnel through the soil and rock will meet with the difficulties, accumulated to an indefinite degree, that were encountered in the construction of the Thames Tunnel. The shingle and sand on the French side of the Channel would seem to present insuperable obstacles to such a work.

The construction of an iron tunnel would not have the same difficulties to encounter. By an improvement on my suggestion, contained in your *Journal* of June 18, 1853, relative to an iron railway tunnel under the Thames—namely, sinking it in a trench across the bed of the river—the nature of the sea bottom would not be an important matter, so long as it possessed sufficient solidity. The greatest depth between Dover and Calais is 31 fathoms, and the sinking of an iron tunnel in the bed of the Channel would afford a ready means of applying materials for the protection of the iron from the action of salt water.

June 6.

JOHN JOS. LAKE.

ON SLATE QUARRIES, AND THEIR MANAGEMENT.

SIR.—What has been written on this subject by "Cambrian Eryr" has undoubtedly created, and will create, great sensation amongst speculators in slate quarries, and will, I hope, be productive of much good. The subject has been well ventilated, and most of "Cambrian Eryr's" observations are such as would have been made known long ago by many a practical man, who had considered the subject well, had he been as gifted as "Cambrian Eryr" appears to be. But for all that I, for one, beg to dissent from him when he says "a quarry that employs from 300 to 400 men can be managed by one man," &c. I would most decidedly reply in the negative, and say that, however active and skilful the manager of a slate quarry employing 300 to 400 men might be, it would be impossible for him to do his work effectively, nor nearly so. I should not be at all surprised that "Cambrian Eryr" is a Carnarvonshire man, and possibly more accustomed to the slate quarries of Carnarvonshire than those of any other place, which as a rule are not chambered underground, as is the case in the principal slate quarries in Merionethshire. It at least requires double the circumspection and care in a slate quarry of the latter description to what it does in the former. Watch the progress of the slate bargains, and give them your best attention during the current month, still you will be in the greatest danger of being cheated at the ensuing letting day, for many there are who are so unprincipled as to ask double the price they should for working a slate bargain. The men will take good care to describe the slate rock to their own advantage, and to hide foot-joints, &c., advantageous to themselves. The anxious work it requires, therefore, to watch the progress of so many slate bargains as are to be found at either of the following slate quarries—Welsh Slate Company's quarry (Palmerston's), Rhiwrydri Slate Company's quarry (Mathew and Son), and Holland's quarry, which for the most part are chambered underground; and let it be remembered that the darkness is so great sometimes, from fog and denseness of the smoke, that candles only assist to make the darkness more visible. I should say that to see one man attempting the management of either of the three quarries mentioned would be highly absurd, although the number of men employed at each of them is only from 300 to 400.

And, apart from this (and anyone skilled in quarrying knows it well), great tendency exists in many rockmen to be extravagant of the produce of the slate rock. In spite of the vigilance of the quarry manager, slate rock is, and will be, blasted to pieces by unskilful rockmen, and blocks smashed by labourers too ignorant to know the difference between a block that would yield a few slates and an unproductive one. In the latter

case, although the bargain taker would be close at hand, yet he would simply be a looker-on, and would permit his comrade to smash a block that would produce a few slates, because it would not pay him for the trouble, his poundage being too small; whereas a rubbler would have been glad of it, and have worked it, perhaps, for less poundage. It, therefore, follows that hardly too much attention can be bestowed to this portion of a quarry manager's business; and a vigilant and close observing manager saves a vast quantity of slate rock in marching and counter-marching from one slate bargain to the other: and undoubtedly employing a sub-agent in a slate quarry employing 300 to 400 men would be of great assistance in doing this portion of the work effectively. It often happens that in one day he saves in value triple his wages for one month.

Festiniog, June 4.

R. R.

PROSPECTS OF THE MINING AND METAL MARKETS.

Sir,—It is quite evident that your correspondent of last week, who signs himself "Cornubiensis," has taken a comprehensive and correct view of the state and probabilities of British mining. Being corroborated by such an authority as Capt. Absolom Bennett goes a long way in proof of the justness of his remarks. Without in anywise trenching on the opinions and views of others, "Cornubiensis" says plainly if the foreigner has the advantage, the capitalist has his choice. He also says, do not be forever abusing mines and mining; very proper too, for that lately has been too much the prevalent cry. Almost all kinds of speculative properties have been considered immaculate but mining. It has been well for those who work miracles—or, to use an ancient phrase, "consult the oracles"—to keep up the continuous howl against mining. "Cornubiensis" snubs such parties in his caustic letter; he also deals the landed proprietors a gentle backhanded blow, when he says they will then, perhaps, learn to be liberal, merchants and men to be honest, &c.

It may be depended on, if some change does not take place, and that soon, the tin, copper, lead, and zinc mining of the United Kingdom will experience such a reverse to the onward progress it has for many years received, that even stolidity will be aroused, and those who have contributed most to the downfall of one of the principal sources of Britain's greatness will deeply repent their temporary and dreadful folly. A little observation will teach what headstrong impetuosity never will—caution. That little should be carefully husbanded; it will be found to be the true way to wealth in mining, far more safe, infinitely more ready, than all the gold mines of Wales or the Nevadas of America.

Of all the distant foreign copper mining adventures that have been successful and remunerative to the British adventurer few indeed are the number in comparison. When judged of fairly, these few do not come up to anything like equivalents to what are termed "trumps" in the British islands. What are they when weighed in the balance with Devon Great Consols, Old Wheel Fortune, Cornwall Consols, Dolcoath, Wheal Vor, Tresavean, Allenhead, Talarogoch, Minera, Maesysefn, Westminster, Berehaven, Laxey, Foxdale, &c. I quote well known and mostly at present working mines in preference to falling back upon bygone.

Now, all the millions that have been raised in these mines cost a proportionate part in expenses, and as a natural consequence created traffic, and spread comfort, education, intelligence, and religion. Add to all these, it extracted these millions from inert matter, and created fortunes for the land proprietors, caused towns to be reared, wilds to be cultivated, semi-savages to be civilised, unknown districts to be populated; indeed, have completely metamorphosed the localities in which minerals are to be procured.

It may be said by the reader—"Cui bono. All this we knew before. Come to the point at once. What is to be done?" We come to the point. Let the British public use caution. Let them learn dearly-bought experience, not to trust to golden impossibilities in America, in Wales, or in Cornwall. Let them put the saddle on the right horse, and not condemn without reason, or rest their opinions on hearsay or glowing prospectuses. They may depend on it the old saying, "more cry the less wool," still holds good.

"Cornubiensis," again, takes a just view of the state of parties who have raised immense capitals on schemes out of which the promoters were to be paid their interest on the first instalment being realised. "Will they return the cash now they have the (legitimate they would call it) excuse of the drop in the price of metals?" It is a godsend indeed for them. They well know that the schemes thus invitingly described never would or could pay, even should the prices of metals have advanced to twice the amount they have reached within the last 30 years.

I perfectly agree with your correspondent, that the home miner has nothing to fear, provided he has "a fair field and no favour;" but if capitalists will prefer foreign in preference to British mining enterprise—if landlords will be exacting, Governments dictatorial and oppressive, men headstrong and blind to their own well-being—we have but little hope for the future; and I truly hope the present depression will act as a caution for it may be depended on, let the present position of British mines be further circumscribed, and ruin must inevitably ensue.

I hope to see some more efforts of your correspondent's pen, when I will continue and enlarge on the subject, which I hold to be of national importance.

J. J. M.

PROSPECTS IN THE CHIVERTON AND GWENNAP DISTRICTS.

Sir,—It is pleasing to see that, on the part of the public, a better feeling exists towards *bona fide* mining properties, and in several instances a rise in the price of stocks has taken place, consequent on the increased demand. It is now getting generally believed, and indeed felt, that this kind of speculation is by far the safest and freer from risk, when compared with the different financial schemes which have been brought on the tapis, to the utter ruin of many, within the last few years. It was always a matter of surprise to me why the public placed their money with confidence in such bubbles in preference to legitimate mining, for there really is nothing that pays the investor so well as this class of speculation; and if we look at the comparatively small outlay connected with it, and the immense profits which are made, it is not at all to be wondered at that public attention should be drawn to this kind of enterprise. The outlay on West Chiverton was scarcely worth calling by that name when they discovered one of the richest deposits of silver-lead ever found in this country, and which is now paying, and will for many years to come pay, handsome dividends to the proprietors; the market value of which is now something like £20,000, which will give some idea of the nature of the property. To the west, and on the course of the same productive veins, is Chiverton Moor, which I have so often brought under the notice of your readers. A point of the greatest importance will come off here in the course of a week or two, which I have no hesitation in saying will fully confirm my reports, and I shall not be surprised to see at the end of another month the shares selling in the market at a much higher price than they now are. A mine of no minor importance is North Chiverton, the returns of mineral from which are only second to the great "Golconda" of the district (West Chiverton). The lodes in the different levels are producing good quantities of ore, and as the levels advance they are laying open large bunches of lead and blende, which will by-and-by be sent to market, at a good profit to the shareholders. The grand object here is to extend the deeper levels into the western ground, under the long run of lead ground passed over in the shallow workings. I have often had the pleasure of referring to this property, believing it to be second to none in this great district, and it only requires a little time to prove all, and much more, than I have said about it. The few mines I have lately referred to well—suitable it is to say, a good rise in the price of TREAVEAN shares has this week taken place, which is quite warranted by the best discovery we have had in the county for years, and having lately said so much about it, I can now safely leave it to tell its own tale; and I am also positive in opinion that those who hold on a little longer at North Chiverton will reap the same reward.

At HALLENHEAD a reaction has set in, for within the last week the property has enhanced in market value about 3000*l.*, consequent on the anticipated rise in copper, and improved prospects of the mines, thus showing that my advice of last week is fully borne out.—St. Day, Cornwall, June 6.

CHARLES BAWDEN.

MINING IN AMERICA.—The number of States engaged in mining iron is ten—Pennsylvania, Michigan, New Jersey, New York, Missouri, Massachusetts, Connecticut, Maryland, New Hampshire, and Ohio. Their rank, in the amount produced, is in the order named. New Hampshire and New Jersey raise mainly the magnetic ores; New York, the magnetic and hematites; Connecticut hematites; Pennsylvania and Ohio raise the argillaceous ores of the coal measures; and Missouri and Michigan raise the compact red and black oxides.—New York Herald.

COPPER MINING IN CALIFORNIA.—The vein on which the Union Mine in Copperopolis, is located lies in a north-east and south-east direction, and dipping to the eastward at an angle of 16° to 20°, the footwall being a dyke of serpentine, some 20 ft. or 30 ft. wide, and the hanging-wall the ordinary slate of the country. The claim consists of 1950 ft., and has been opened for a distance of 800 ft. from the northern end. The main shaft is vertical, and has reached a depth of 480 ft., with levels running every 40 ft. of 72 ft., 106 ft., 150 ft., 200 ft., 250 ft., 300 ft., and 384 ft. respectively. A cross is being started for a level, at the bottom of the shaft. The shaft cuts the vein at a depth of 72 ft., at which point it is 8 ft. wide, the chimney extending a distance of about 100 ft. From this down to the 250 ft. level it steadily increases in width until at that point it is from 25 ft. to 40 ft., the average of this level and the one next below being about 30 ft. On the two lower levels the chimney has not yet been struck. As far down as this chimney has been traced its length is about the same (100 ft.), while it dips to the northward, by the measurement of Mr. Petherick, at an angle of about 60°. At the north end of the main chute of ore the vein is divided by a horse, which extends through this claim and the Keystone, forming two distinct veins. In the north shaft of the Union, the western vein is from 4 ft. to 5 ft. thick, and the eastern about 3 ft. on the lowest level in that shaft, a depth of 170 ft. At the south end of the chimney there is but one narrow vein, which in the south shaft has an average width of 3 ft., with from 20 in. to 24 in. of concentrated ore. I was told by the superintendent, Mr. Balch, that nearly 25,000 tons of ore had been shipped during the past year, and he estimates

that there are about 50,000 tons more in sight. There are now about 195 men in the employ of the company, nearly half of whom are employed in assorting the ores for shipment, as the low grade ores, being mixed with a large quantity of slate, require to be broken up and selected by hand. The machinery for hoisting and pumping is, as may be expected, in such a mine, of the very best. In the main shaft a safety-cage is used, which is the invention of Mr. Wm. N. Shaw, one of the employees of the company, which is one of the most perfect working machines of the kind in use.—San Francisco Mining Press, April 21.

MINING IN CANADA.—A correspondent writes:—"I hear that the Americans are now looking after our mines for iron pyrites. The surface of the Marquette is covered with it in beds of various widths and thickness, there being a great demand for sulphuric acid for clearing and purifying coal oil. At the oil regions companies are being formed to purchase such properties, and manufacture the acids; the copper, of course, will be turned to good account by them. I noticed a remark of Mr. John Taylor's, at the meeting of the West Canada Company, in last week's Journal, that they want pyrites; his attention should be drawn to the large quantities of it at Ascut, Canada East. The enclosed paragraph, from the Montreal paper shows that the mines in Canada East improve in depth. Many people in England have the idea that the copper there is in pockets, the same as was at the Acton, which, I believe, now shows it in depth. The Buihrath Mine, near St. Francis, Capt. F. Bennett states to be on the same vein and the same stratification as St. Francis. The owners of the St. Francis, I hear, have no capital to work it; they depend on the sale of the ores to pay expenses of development, having exhausted all they subscribed."

RARE SPECIMEN OF COPPER.—A beautiful block of the vitreous sulphure of copper, just cut in the bottom of the shaft of the St. Francis Mines (now the deepest in Canada East), and to be seen at the St. Lawrence Hall, is likely to attract attention in mining circles. It has been remarked of late that a very decided change was taking place from the soft carbonates to a harder gangue, causing the ore to become richer and more compact. The specimen shown this morning is a complete illustration. This rich block, taken from a depth of 230 feet below the surface, assays about 60 per cent. of pure copper. As a pure vein, it surpasses anything yet discovered in the Eastern Townships. Capt. F. Bennett (the manager) expects to ship eight car loads of ore as the produce of this month.

THE WADGE TESTIMONIAL.—The presentation of the testimonial subscribed for by the friends of Mr. Erwin Harvey Wadge, F.G.S., of Manchester and Dublin, took place at the Albion Tavern, Aldersgate-street, London, on Friday, the 1st inst. The testimonial was in the form of a piece of plate, value 300 guineas, and a marble bust, executed by Mr. Neville Burnard, the eminent Cornish artist, and presented to Mr. Wadge as a testimony of respect for his worth, and "as a public benefactor to the metallic interest of the kingdom." The event was duly celebrated.

"IRISH INDUSTRIAL MAGAZINE."—We have just received the number for June (the sixth) of this serial. We have so frequently commented on the general usefulness of the work that it appears almost a repetition to say that it surpasses its predecessors in interest and variety. It is quite evident that the editor and his co-workers have taken a real matter of surprise that a serial so very recently introduced, and so novel a subject, should have taken such a prominent position amongst the periodical literature of the day. We confess we have some misgivings at the outset of the undertaking whether matter of sufficient variety and interest could be commanded to fill the pages of so extensive a sheet as 60 pages monthly. Not only is this achieved, however, but evidences are afforded that the subjects to be treated on (Ireland's industrial resources) are perfectly inexhaustible. The editor has done his country, Ireland in particular, good service by his admirable tact in so judiciously creating a continuous interest in a time when so many opinions are being uttered on the different projects for Ireland's permanent improvement, it will be well for those who desire to obtain correct and authenticated views thereon to study the pages of the "Irish Industrial Magazine." They will therein find most of them calmly and carefully considered, wholly divested of party or sectarian views, and treated in the most candid manner. The number for June contains papers on—the Rise and Progress of Barges; Tourist Traffic, as a Source of Wealth; Facts generally known, greatly disregarded; a continuation of Industrial Progress; Wicklow Mining District, with two maps, completing the series; Labour Education of the Irish People; the Houses we Live In; Small Farmers, and Tenant Right; Photography; Lace Making; Wood Work, and Tools Employed therein; Prospects of the Irish, at Home and Abroad; Mines, Fisheries, Manufactures, Statistics, &c.—surely variety enough to satisfy the most curious, and all having a distinct, though united, bearing on the main point—Ireland's welfare. As before remarked, we have always felt great interest in the progress of the work, and fairly own that now the Magazine has assumed a new and complete form—the six monthly numbers being bound as the first volume, in an appropriately ornamented cover—there can be no hesitation in pronouncing it a first-class publication; in fact, no library of any pretensions, either in England, Scotland, or Ireland, can be said to be completely supplied without possessing a copy of this really national work. We commend it especially to members of both Houses of Parliament, and feel confident its perusal will tend to annihilate many prejudices, and afford excellent ideas to those who at present know but little of Ireland's necessities, or the capabilities the country possesses within itself of relieving them. We congratulate the editor, Mr. E. H. Wadge, F.G.S., on the fact of the first volume making its appearance in so elegant a form, and with such an abundance of really patriotic and useful information. It augurs well for it, and is calculated to insure, a great success, and a high position for Ireland's only wholly industrial publication.

"GEOLOGICAL MAGAZINE."—The June number of this magazine contains an admirable collection of original articles, comprising a paper on the Origin of Hills and Valleys, by Mr. Poulett Scrope, M.P.; on Traces of Permian Volcanism in Scotland, by Mr. A. Geikie; on Fossil Ammonoites, by Mr. W. Carruthers; and on Tufa Deposits in Flintshire, by Mr. G. Maw. The Notices of Memoirs embrace—on Rhynchonella leporina, by Mr. W. B. Dawkins; on Sauronia, by Mr. Harry Seeley; on the Geology of Norfolk, by the Rev. John Gunn; on Coal and Petroleum, by Prof. H. D. Rogers. The remaining portion of the magazine is occupied with Reviews, Reports and Proceedings of Geological Societies, Correspondence, and Miscellaneous matters—the whole collated with evident care and judgment, and forming a most valuable epitome of the progress of the science during the month.

DEPRECIATION IN THE VALUE OF SHARES.—In pursuance of the purpose of showing the exemption which shares in mining companies have enjoyed during the continued depression and panic from those large fluctuations to which all other securities have been exposed, Mr. Lelan has given a tabulated exhibit in his "Stock, Share, and Finance Register" for June, in continuation of the lists contained in the Register for April and May, of the difference in prices between April 9 and May 11, in a number of bank, finance, and miscellaneous companies, and in a number of mining companies; and the result is a very striking and impressive one. Having shown in the preceding Registers that a number of the former class of companies had suffered a depreciation in the value of their paid-up capital and shares previous to April 9, to the extent of about 36,000,000*l.*, out of 117,000,000*l.*, it is now shown that these shares have subsequently advanced with evident and decided improvement to 20 to 40 per cent. This is a very frightful, and the contrast which mining shares present is altogether agreeable, "for," says Mr. Lelan, "with the exception of three or four mines, the shares quoted lower at the later date are but little lower than they were at the former, while several of them stood at the same price, and several of them had advanced." An article on the Panic, its Causes and Consequences; and another on How to Get up a Panic, are well worth reading, and with the comprehensive review of the money and share markets for the month, render the present number of Lelan's Register more than usually interesting.

ACCOMMODATION ACCEPTANCES.—The case of Mee, before the Lord Chancellor, on appeal, was where the bankrupt's order of discharge had been suspended for a twelvemonth, without protection. The bankrupt was a small farmer. His own debts did not greatly exceed his assets, but he had become liable on acceptances for the accommodation of his brother-in-law, who was a large landowner. The Lord Chancellor said:—"The only point in the case is, whether this gentleman, by accepting bills which he knew at the time of acceptance he had no reasonable probability of being able to pay, was contracting a debt within the meaning of the Act. If two persons setting up in trade accept bills for their mutual accommodation, that transaction is just the same thing as contracting a debt. There is nothing, in my opinion, to distinguish this case from that decided by Lord Westbury. The decision of Lord Westbury was a very convenient one, because it met not only the language of the statute, but the interests and convenience of the community. I shall, therefore, entirely adhere to it, and discharge this appeal, with costs."

VENDOR AND PURCHASER: EIGHT PER CENT. INTEREST ON PURCHASE-MONEY.—The suit of Lady Herbert v. the Salisbury and Yeovil Railway Company, was where the company having contracted to purchase certain lands belonging to the late Lord Pembroke, agreed, after a fixed time, to pay 4 per cent. interest on unpaid purchase-money, and after another fixed time to pay 8 per cent. The plaintiff claimed specific performance of the agreement, and that interest might be paid on the purchase-money at the rate of 8 per cent. from Jan. 1, 1859, and that such interest might be declared to be a charge or lien upon the purchased premises. The Master of the Rolls said the question here is not whether interest shall be paid at all, but whether 8 per cent. is a penal rate of interest such as this Court will relieve against. If a man enters into a contract with his eyes open to pay a high rate of interest definitely and unconditionally he cannot afterwards complain of the hardness of the contract; nor does it matter whether there is, as in this case, an ascending scale of interest. This is quite different from a covenant to pay a higher rate of interest if the lower rate is not paid punctually. The stipulation to pay 8 per cent. was an essential term of contract, and not in the nature of a penalty, and no fraud having been proved there must be decree for specific performance according to the terms of the contract.

PROMOTION MONEY.—In the case of the Madrid Banking Company (Limited), the promoters of the company agreed to pay to the directors a certain sum out of the promotion money. The promotion money was not to be paid till the shares were allotted. The first issue was stated in the prospectus to be 30,000 shares. The directors made the allotment when only 5000 shares had been subscribed for, and received the sum (3000*l.*) agreed to be given them by the promoters. The promoters put in a claim, under the winding-up, for promotion money. It was held by the Master of the Rolls that the allotment made by the directors was not a *bona fide* allotment, and, therefore, that the promoters' claim must fail.

POLLUTION OF RUNNING STREAMS.—It has been decided by Vice-Chancellor Wood, in the case of the Attorney-General v. Richmond, that persons are not entitled on the ground of there being an ancient custom or privilege, at various times, and in various proportions, to make a river or running stream in order to carry off their sewage into drains, to collect the whole mass and pour it at one time in such a manner and quantity that the river or stream cannot perform the proper function of diluting the sewage on its passage down to the lower riparian proprietors, and thus cause a pollution of the stream and a nuisance; and the Court of Chancery will restrain the local authorities of a parish from doing the same in future if it has become a nuisance.

LOCOMOTIVES FOR ROADS.—The locomotive for ordinary roads, constructed by M. Albaret and Co., of Liancourt, descended the hill from Laon to the railway station at an average speed of five miles an hour, and afterwards ascended it in eight minutes, with a load of 5 tons, the pressure being only five atmospheres. This experiment, which was afterwards repeated with the same success, shows that this engine is able to draw 30 tons, at an average rate of from two and a half to four miles per hour.

LONDON GENERAL OMNIBUS COMPANY.—The traffic receipts for the week ending June 3 was 12,647*l.* 16*s.* 1*d.*

Meetings of Mining Companies.

NORTH CHIVERTON MINING COMPANY.

The adjourned general meeting of shareholders was held at the offices of the company, Austinfriars, on June 1.

Mr. EDWARD COOKE in the chair.

Mr. J. H. MURCHISON (the secretary) read the notice convening the meeting, as follows:—

At the general meeting of the adventurers of this mine called here for this day, owing to the absence of the cost-book in the Stannary Court at Truro, on account of the proceedings there against the shareholders in arrears, it was resolved—"That this meeting be adjourned to Friday, the 1st of June, at One o'clock precisely."

The minutes of the meeting of which the present was an adjournment, and also those of the last meeting, held in February, were read and approved. The agent's report stated, that from the character of the north lode, where seen in the 70 west, and the others that are being operated on, coupled with the cross-cut driving in the 54 towards the south lodes, and as the cost will, no doubt, be reduced after this month, he considers the prospects for the future are most encouraging—he might say never better. In the past quarter they have sold 110 tons of blende ores, at an average of 3*s.* 6*d.* per ton, and the next sampling will be from 60 to 70 tons more, and sell a little over 9 tons of silver-lead. Number of hands employed in and throughout the mine 90.

The accounts showed a balance of assets over liabilities of 500*l.* (crediting the arrears of call, amounting to 1500*l.*, as paid).

The CHAIRMAN, after a few prefatory observations, stated that since the last meeting circumstances had transpired which rendered the present meeting one of more than ordinary interest. The shareholders were aware that at the meeting in February there were large arrears of call, chiefly due from two of the promoters of the company. The promoters, of whom there were three, received between them 1000*l.* in repayment for the money they had previously expended, and also a premium for the shares they had transferred, thus making a considerable profit. He did not wish it to be inferred from this that he considered they had been over-paid, for he believed, and he still entertained the same opinion, that the property so acquired was most valuable in its character. (Hear, hear.) He regretted to state, however, that owing to speculative transactions two of these promoters lost their money, and that, consequently, after the prescribed amount of 5000*l.* was expended in the erection of the engine, and in the works of development, they were unable (and he regretted to say that on the part of one he appeared very unwilling) to pay the requisite calls. The shares were consequently duly forfeited, but upon an application being made to the Stannaries Court for the usual order to sell the shares so forfeited, one of the defaulters, who styled himself Mr. Tom, opposed the petition, upon the ground (and to his shame be it said) that the calls made were not carried by a majority (in value) of the shareholders. Strange to say, however, the Vice-Warden, upon this purely technical objection, dismissed the petition. The call of which the arrears formed part, however, was really made when all the shareholders were present. Now, he need not tell them that if that call had certainly not been made, and that at least nine-tenths of the calls made at cost-book mine meetings held in London, and even on the mines, were practically illegal. It was held, he (the Chairman) believed, in almost every company that a notice of a meeting convening the shareholders was legally sufficient to bind absentees to the proceedings of the majority at such meeting. He (the Chairman) stated most emphatically, and without fear of contradiction, that there had not been a single call made, nor one shilling expended, more than had been absolutely necessary for the legitimate purposes of the mine. The best evidence of this fact would be abundantly attested by a reference to the books of the company, where it would be found that he (the Chairman) had been a creditor of the company for nearly two years, by having from time to time advanced money for the monthly cost, in order that the poor hard-working miners should not go unpaid. (Hear, hear.) For these advances he had never received one penny interest from the company, although they had been debtors to him at times to the extent of between 1000*l.* and 1100*l.*; and yet the Judge of the Stannaries Court inferred that the calls had been beyond what were required. It was for this meeting to determine what was to be done in such a case, and as the solicitor of the company was present he would render his professional assistance in arriving at a proper decision. The shareholders might rest assured that they possessed a property of great mineral value, and that so long as he had any voice in the administration of the company's affairs he should always advocate a call being made that, when responded to, the shareholders might rest perfectly satisfied they would not be called upon at any future time to pay anything more, even if the mine were to cease working three months hence, although that was an eventuality not at all likely to occur. If, however, such a circumstance were to happen, there were many parties who would be only too glad to purchase the mine, for it had now been brought into such a forward state that there seemed reason to hope that the expenditure of but a further small amount of capital would prove North Chiverton to be a permanently successful mine.

A SHAREHOLDER was satisfied that there was not one meeting of a cost-book mine, whether held in the county or London, at which anything like a majority of the shareholders were present, so that if the Vice-Warden's judgment were correct calls made under such circumstances could not be enforced. He thought it was the duty of parties most interested in this question to appeal to a higher tribunal.

Mr. G. BATTERS had to say what an extent the company had been, and still was, indebted to the Chairman, and he need hardly say that each *bona fide* shareholder deeply regretted that such a *contretemps* as that to which he had alluded should have taken place. But their obvious duty now was, according to the Vice-Warden's dictum, to at once legalise the whole of their past financial proceedings, and forthwith proceed to have the law carried out. It was monstrously absurd to suppose that shareholders should go on paying calls for the development of a mine, and that a man who was one of the promoters should be allowed to go on without paying calls until, if a great misdeed should be made, shares became exceedingly valuable, and that same party be allowed to reap the advantage brought about by the expenditure of capital, towards which he had not subscribed one shilling.

Mr. SHARP fully agreed with the remarks of the previous speaker, and thought it was but an act of justice to themselves, as call-paying shareholders, to do something positive and business-like. With that view he suggested that Mr. Murchison should be instructed to present another petition against Mr. Tom.

Mr. MURCHISON, referring to the recent decision of the Vice-Warden, stated that he had written a letter upon the subject for publication, and being a plain statement of the case, he would, with the permission of the shareholders, read it. It was as follows:—

STANNARIES COURT.—WATSON V. TOM.

SIR,—As my name appears officially connected with the North Chiverton Mine, in the report of the above case, I trust you will interest the following remarks from me:—In the first place, with regard to the transfer of 500 shares from Tom to Cooke, the facts, as far as I can recollect, are shortly these. About March, 1855, Mr. Cooke informed me that he had in arrears to the amount of 88*l.* of which 480*l.* was owed by Tom, and told me that in order that the amount might be diminished before the general meeting, then about to be held, he proposed to advance Tom the sum of 500*l.* on the security of 500 shares; and he would do this by authorising us to debit him (Cooke) with that sum against the 908*l.* which was then owing to him (Cooke), for advances and sums paid by him on account of the mine. Shortly after this, a transfer of 500 shares from Tom to Cooke was brought to the office, and my transfer clerk retained it on the distinct and expressed understanding that a receipt for 500*l.*, signed by Mr. Cooke, would be sent in, as a security to the shareholders, to charge the amount against the large balance owing to him by the mine. Subsequent to this it appears that a misunderstanding or dispute arose between Tom and Cooke, and the receipt not having been forthcoming, the condition on which the transfer was received not having, therefore, been complied with, the document was returned to Tom, it never having been registered or entered in the cost-book like all other transfers, which I apprehend is the only proper registration of a transfer to constitute a title to the purchaser, and to release the seller. It is true that an entry was made in the ledger, but particularly as "custom" seems to be the foundation of the "Cost-book System," I presume that the cost-book alone is the legal evidence of registration. In any case, Tom must surely be liable for the calls due up to that time. No transfers have ever been registered without at least the proportion of the call due on the number transferred being first paid. The Vice-Warden, in his judgment, states:—"The calls proved before me were three—one of 5*s.* per share in March, one of 5*s.* in July, and one of 4*s.* in October, 1855. Now, whether these were strictly calls I entertain great doubt, because I do not think that altogether these sums of 5*s.*, 5*s.*, and 4*s.* were necessary for the carrying on the mine up to that time." This I cannot understand, seeing that the accounts in the books before the Court showed the following figures:—March, 1855, balance against mine to end of Jan., 803*l.*; July ditto ditto Mar. 591*l.*; Oct. ditto ditto Aug., 124*l.*. These accounts included all the calls in arrears as a good asset, and showed forcibly that the call made at each previous meeting had been required. In the case of Tom, he has assented to these calls by acknowledging in writing his liability for the amount due on his shares beyond the 500*l.* I am aware it is said that in the view of the Stannary authorities no call should be made for a larger amount of expenditure than appears to be owing at the time; but how, then, is the mine to be carried on in the meantime? Is it not encouraging and sanctioning the working of mines on a system entirely of credit? Is it not better and sounder policy to provide the means before you incur the outlay? Whatever may have been the custom in centuries long gone by, I think in these more enlightened days it will be conceded that it is more prudent to provide the capital for defraying the estimated costs from meeting to meeting, than to allow a pursuer to incur liabilities for the whole amount, and trust to the future for the funds, remembering also the general delay in collecting calls from shareholders all over the United Kingdom and abroad. But the Vice-Warden has dismissed the petition mainly on the ground that the calls were not made at meetings at which a majority in value of the whole shares of the mine was represented. This, again, if a "custom," was practised so long ago that it has become quite obsolete from the want of custom, for I venture to say that not one call in ten is made by a majority in value, and in such cases as it may happen it is quite by chance. In fact, with such a law in force, it would be practically impossible to carry on mines on the Cost-book System. Meetings are generally held at least once a quarter, of which every shareholder has notice, and surely the ordinary business should be transacted by those who attend, and persons should not be compelled to travel long distances, or neglect other important matters, every two or three months, to comply with a useless technicality which in no other companies is required. With regard to Tom's case in North Chiverton, I must state that a general meeting is to be held on June 1, when there is little doubt that all the back accounts will be passed, and all past calls confirmed, by a majority in value of the whole of the shares, thus relieving the company from present inconvenience, and enabling us to remove all doubts as to obtaining something at least from Tom without much delay. It is probable, however, that the Vice-Warden's judgment, both on the point of the transfer of 500 shares and the legality of the calls, will be appealed against; for if his view is correct on the latter point it is clear that the interests of mining immediate steps must be taken to obtain a change in the law. I will only for the present add that my connection with the mine dates only from a short time after the death of the late Mr. Dunford, when the affairs of the company were transferred to me.—J. H. MURCHISON: St. Austinfriars, London.

After some discussion, chiefly upon points which had no reference to the business of the meeting, and in which the shareholders had no interest whatever, upon a motion proposed by Mr. G. BATTERS, seconded by Mr. SHARP, it was resolved—"That the accounts of this mine, which have been already produced, audited, and passed at meetings of the adventurers on the 9th day of September, 1854, the 17th day of March, 1855, the 3rd day of July, 1855, the 16th day of October, 1855, and the 15th day of February, 1856, having been this day again produced to this meeting, and having been now examined and found correct, be, and are hereby allowed and passed; and that the calls made at the meeting of the adventurers—namely, 1*s.* per share on 6000 shares on the 6th day of November, 1853; 5*s.* per share on 6000 shares on the 17th day of March, 1855; 5*s.* per share on 6000 shares on the 3rd day of July, 1855; 4*s.* per share on 6000 shares on the 16th day of October, 1855; and 5*s.* per share on 6000 shares on the 15th day of February, 1856, be, and are hereby confirmed; and that the accounts now presented be passed and allowed, and that the report be received and entered on the minutes."

The CHAIRMAN said that whatever the shares might be considered worth the com-

pany had a liability, which, as business men, they must discharge. He was sure that the shareholders present would agree with him, that they ought to make a call sufficient to clear off the outstanding liabilities, irrespective of the shares in question. He was one of the largest shareholders, and as such he advocated that a call should be made of an amount sufficient, if properly responded to, to pay off all the liabilities, and thus be thoroughly satisfied that no heavy amounts were hanging over their heads. (Hear, hear.) For the purpose of paying off their known liabilities, and to provide funds for future working, he would suggest that a call of 7s. per share should be made.

Mr. SHARP considered they had no right to provide funds to meet future liabilities. Mr. G. BATTERS enquired the estimated amount of loss during the current three months?—The CHAIRMAN said the mine was very much improving, and there seemed good reason to hope the returns would soon considerably increase, and to an extent sufficient to meet the costs, but the costs of the current quarter should be provided for. Mr. MURCHISON thought the question the present meeting should decide was, what was the best course to be adopted for the benefit of the shareholders and the company; and as the majority of the shareholders were present, either by person or proxy, they could make such a call as was deemed necessary. He then mentioned the circumstances in connection with a similar decision given by the Vice-Warden in the West Par, stating that at that time an eminent solicitor, who had had considerable experience in the Stamp laws, and was regarded as one of the best authorities upon the subject, gave it as his firm opinion that the Vice-Warden was wrong, and that had he been engaged in the case he most certainly should have appealed against it.

Mr. T. FIELD said that the case of West Par was the first, to his knowledge, in which such a defence was set up. Mr. MURCHISON said the Vice-Warden stated that it had always been so ruled by his predecessor.

The CHAIRMAN, referring to the recent proceedings against the defaulting shareholders, stated that he considered it but an act of justice to state that Mr. Peet, one of the promoters, had not followed the example of Mr. Tom, in endeavouring to back out of his liability by taking advantage of a mistake in the law, that the calls were not made when a majority of the shareholders were present. Now he (the Chairman) felt bound to state that Mr. Peet had never urged that shameful plea—(Hear, hear)—but what they had to do upon the present occasion was to pass a resolution approving and confirming the calls previously made. He (the Chairman) represented in person and by proxy more than half the shares in the mine. Gentlemen had entrusted him with their proxies, knowing that he would not use them for any purpose other than the general benefit of the company—(Hear, hear)—and he intended to use them to support a resolution legalising the calls previously made, in order that defaulters should not, upon a mere technical point, escape from their liability.

Mr. MURCHISON said that the principle on which the law of the Vice-Warden was founded was a most sound and pious one, and, on appeal, could not be successfully supported. It sanctioned and encouraged a system of working mines entirely on credit. The Vice-Warden decided that a call to be legally made must not exceed the amount required for debts already incurred, so that, if he is right, cost-book companies could not make calls to meet prospective expenditure; and who, then, is to find the funds to meet the current costs, when the Vice-Warden also decides that it is illegal to borrow money, and only those shareholders who personally sanction it are liable?

Mr. PEET thanked the Chairman for the manner in which he had alluded to him (Mr. Peet); but at the same time, as regarded his own position, he felt bound, in his own justification, to state that before the calls were made upon the shares that remained in his name he had a credit. As regarded the person to whom the Chairman had referred, he (Mr. Peet) quite agreed with him that language could not be used to condemnatory of such a procedure, and especially when it was known that the person in question had profited so largely by promoting the company. He (Mr. Peet) only wished to say that he was not a defaulter in the true sense of the word, as being unwilling to pay his calls. As regarded the 500 shares, about which there was a question between the Chairman and Mr. Tom, he (Mr. Peet) might perhaps be permitted to mention that he had seen the private correspondence that had taken place, and he (Mr. Peet) felt positive it was merely a kind act on the part of the Chairman to assist Mr. Tom as a defaulter. (Hear, hear.)

Mr. MURCHISON stated that he had referred to this point in his letter, and he believed an appeal would be made against the decision given thereon. The CHAIRMAN said there were a large number of shareholders in Scotland, and it would be satisfactory to the meeting to know the opinion of the Scotch shareholders as to the amount of call that should be made. Mr. CARPIN (a Scotch shareholder) said that, looking at the position of the company's financial affairs from a common sense point of view, he should think it much better to make a call sufficient to pay what was required rather than shareholders should at any future time be called upon to pay back debts. Mr. SHARP said he should not vote against the majority, but his opinion was that, although there was a majority of the shares in value present, yet there were certain things that even then could not be done, and to make a call to provide for future outlay was one of them—it was, indeed, *ultra vires*.

Mr. FIELD said it was quite within the power of the present meeting to divide the costs among the shareholders, and to provide for the future working of the mine. The CHAIRMAN asked Mr. Sharp how the mine could be continued if the present meeting made a call sufficient only to meet the existing liabilities?—Mr. SHARP said by borrowing money from the local bankers. Mr. MURCHISON said it had been ruled that shareholders were not liable for loans, unless previously sanctioned by shareholders, and that only those who signed were liable.

The CHAIRMAN said that although there was just now a little financial cloud hanging over their affairs, yet they had before them the encouraging feature that as the development of their admittedly valuable property progressed its prospects of proving a great success became more certain. (Hear, hear.) There were none present who had paid for their shares more than about 3s. per share, and when they compared their position and prospects with many gigantic schemes that had recently come to such disastrous grief, the shareholders in North Chiverton had not only cause for congratulation in not being liable to ruinous losses, but also upon being possessed of a property that would, there was every reason to believe, as rich neighbour, at least a highly profitable mine. He concluded by proposing that, for the purpose of paying off the liabilities, and providing the next three months' costs, a call of 7s. per share be made. Mr. CARPIN seconded the proposition, which was put and carried. It was also resolved that another petition be at once presented against Mr. Tom and others in arrears of more than one call.—Messrs. E. Cooke, G. Batters, and T. Field were appointed the committee.—A resolution was passed, authorising the committee (with the assistance of Mr. Tuffnell Southgate, the solicitor) to consider the judgment of the Vice-Warden in the case of Watson v. Tom, and to take such steps as they might deem expedient.

The CHAIRMAN, replying to a question, stated that the mine was first brought out of the shares were sold at 2s. per share, 1s. per share of which went towards the development of the mine. As the 1s. per share had not been paid by Mr. Tom on some of his shares, he had really been a defaulter from the commencement. Upon the proposition of Mr. FIELD, seconded by Mr. SHARP, a unanimous vote of thanks was passed to the Chairman for his continued attention to the company's interests, and for his praiseworthy exertions in the promotion of the shareholders' welfare.

The CHAIRMAN acknowledged the vote in appropriate terms, and stated that he looked forward to realising the mine's returns, and that, within a short period, such productive results as could not fail to be satisfactory to the most sanguine among the proprietors. (Hear, hear.)—The proceedings then terminated.

ROSSA GRANDE GOLD MINING COMPANY.

A special meeting of shareholders was held at the offices of the company, Gresham House, Old Broad-street, on Thursday.

Mr. G. NOAKES, F.G.S. (Chairman of the board of directors), presided.

Mr. J. TRUMAN (the secretary) read the notice convening the meeting.

as follows:—For the purpose of confirming, or otherwise, a resolution passed at an extraordinary general meeting, held on May 7—"That the 24th Article of Association of the company, that is, and is hereby altered, and a new regulation made in lieu thereof, as follows, that is to say: 'All the shares in the company, whether paid up or not, shall be subject to the payment of a call of 7s. per share, and the company may, at any time, and from time to time, make such calls as it may think proper, and the board may from time to time vary such calls as they shall think proper.' And the Article as so altered and varied shall be, and is hereby made, a regulation of the company."

The CHAIRMAN said the only special business before the meeting to-day was simply to confirm the resolution passed at the last meeting. The matter then was so fully and fairly discussed, and the object in view was so evident, that there could be no objection whatever now to confirm the resolution then passed. It was simply to comply with the requirements of the Stock Exchange that the company's funds shall not be employed in the purchase of the company's shares. In these times, so pregnant with everything that seems to be about to be discouraging—at all events to bring gloom and apprehension upon the whole commercial world, and upon every kind of enterprise, and mining might well be embraced among the general depression of the country—it was satisfactory to know that, as this company was only just commencing operations, the balance at the bankers was necessarily such that shareholders need not apprehend any great loss in that respect. But, reverting to the present times—if, indeed, they were allowed to remark upon the subject—he certainly could not help thinking that, during a period when such forebodings and reports were spread about, instead of encouraging the gloomy dispositions the commercial community throughout the country should combine to assist and save each other, rather than pull each other down. (Hear, hear.)

As regards this company, two years had elapsed without the power of working the property possessed; but the time had arrived when they themselves justified in commencing operations. He need hardly say that outlay must be incurred, but one advantage was accorded to them, in the fact that the whole of the purchase-money would not be required for some time, which afforded an opportunity for a gradual expenditure, and light calls. The calls that would now be made were really for the development of the mine, so that there would be an opportunity of testing, in some degree, the prospective value of the ground, and its congeniality for the yielding of the precious metal, before being called upon to complete the purchase. He was told on every side, by those who had been in the country, that the property bore such a character that it required only judicious development to make it successful—that, however, no one could tell until the development had taken place. Shareholders might rest assured that the directors would do all in their power to control the expenditure that every detail should be conducted in the most economical manner; it was not intended to launch out immediately into any large expenditure, but gradually to prove the ground, and as strength was acquired to proportionately extend the operations. That being the present position of the company, the shareholders must be prepared to receive notice of a call. For his part, he had expected a much heavier call than that which the board had determined to make. He only hoped the shareholders, now that they were about to obtain an incontestible title to the property, would unite with the directors to secure its proper development. Even now they would not be subjected to the actual payment of the purchase-money until the whole of the legal measures were completed; and, in the meantime, he hoped the shareholders would meet the directors cordially, promptly, and with good will, to prove the property. Since the last meeting, the duplicate of the letter had come to hand, which ought to have been received at the time of the last meeting. The agent, who was exceedingly regular in all his correspondence, both in its detail and in its consideration, always forwarded a duplicate of his communication. In that letter, to which he was now more particularly referring, there was a great deal that was of a most encouraging character. It showed that immediately he had an intention from Messrs. Fry and Co., their agents at Rio, that the agreements entered into were signed, he at once made preparations for the working of the mine. Upon that point he says:—"I have commenced breaking a piece of No. 2 lode, at the eastern end of the former workings, and where I intend leaving a strong pillar or arch remain, to

support the ground between the two places. The produce of gold is very small, owing to a great deal of unproductive portions of the lode and country mixing with the auriferous stone in breaking, and cannot be avoided until we cut more into it, and make a trench of ground to make a selection of the stone. This cannot be done for a month, or two, as the workings are on the side of an almost perpendicular cliff. The lode is quite double the size it was in the workings to the west, and presents a very promising appearance, and I have no doubt when we cut further into it I shall be able to report more favourably of the produce; but it must be borne in mind that the stamps are very defective, and so rotten that it will not pay to make any alteration. It is on the Spanish principle—i.e., no grates for the sand to pass through; we, therefore, cannot expect much produce from so small and imperfect a machine. When the new stamps are set to work, and stone raised from the former works, there will be no doubt of obtaining good returns."

The agent had to be driven in under the old mine workings first, and I am only waiting to have an English miner to put in each 'core' with the Brazilian labourers to push this end forward. The Brazilians cannot plan their holes or blast them, nor would it be safe or profitable to allow them to do so. Craze is employed at the present workings, sometimes two or three other places the same day. When the new stamps are ready I shall require two more Englishmen, one by night the other by day, but it will be soon enough to send them on when I write you to that effect. Adverting to the new stamps, Captain Brokenstar writes that "they commenced on the 12th inst., and the sand washed up to the 22d, making ten days, but were idle four days of the time for want of stone, and this was attributable to the heavy rains making the road so slippery that the mules could not stand with their cargoes. Moreover, the man has only nine or ten animals accustomed to this work, and it will require four or five more to keep the stamps going night and day; these will have to be purchased, and trained to the place and work before they would be of much service, the road being so difficult and rather unsightly for the mules in the first place. The produce for the six days is 6z. 6dwt. 5grs.; but, as before stated, this is not a sample to judge by. When we can break the stone, free of the waste, I believe the yield will be satisfactory."

In his second letter, dated April 25, he says that "more than one-half of the present and the last week in the past month has been nothing but heavy rain day after day, the worst time we have had during the wet season. The roads have been so bad and slippery that the mules could not stand with their cargoes, consequently very little stone has been carried, and the stamps have been idle. I fear the returns will be so small from the present workings by the imperfect machine, that it will be scarcely worth re-mitting for several months to come. I will, however, as you seem to desire it, send you what I can by the troop next month—there is no other means whatever of forwarding it. You will perceive by my cost-sheet that I put on as many hands as circumstances would allow me last month, but the rain setting in prevented their working much this month, and will make April cost the lighter. There is now again some chance of the weather clearing up, so that we may look forward to at least six months dry and fine weather for working; and, whatever is to be done, ought to be accomplished during this period. Much must depend on the funds at my command, and the more people I can employ, especially sawyers and carpenters, to get the new stamps up, the quicker you what I can by the troop next month—there is no other means whatever of forwarding it. You will perceive by my cost-sheet that I put on as many hands as circumstances would allow me last month, but the rain setting in prevented their working much this month, and will make April cost the lighter. There is now again some chance of the weather clearing up, so that we may look forward to at least six months dry and fine weather for working; and, whatever is to be done, ought to be accomplished during this period. Much must depend on the funds at my command, and the more people I can employ, especially sawyers and carpenters, to get the new stamps up, the quicker

returns will be made." In another part of the same letter he says that "no timber was felled during the heavy rains, but the men have again commenced to do so. The carpenter has made an air-machine, with the necessary pipes, in readiness for driving the shaft when the attic shall have been cleared. I am very anxious to get this done and intersect the lode as quickly as possible, for I have faith in some people's reports relative to this place, although, as a general rule, Brazilians make very exaggerated statements when they speak of the gold products of abandoned mines. The lode in the 2d workings is still very large, and of a very promising appearance; and I have no doubt at a greater depth, with good stamping machinery, that the yield of gold from it will turn out satisfactory."

That (continued the Chairman) was the whole of the information he had to communicate, and the substance of that already given was an estimate of the costs under the present circumstances, but that the agent was anxious that his means should be increased, because, judging from what had been seen of the mine, and from all the reports written upon it, he believed that with fair and proper working at least fair returns would be yielded. Therefore, the obvious duty of the shareholders was to furnish those means. Captain Brokenstar had the opportunity to prove his opinion; but, as men of business, they must never lose sight of the fact that they were entering upon a mining speculation, and all that could be done was to work it fairly and properly, never giving exaggerated reports, but the facts as they arise, accepting the results as the best that could be realised. They must have patience, faith, and hope, and if immediately the returns were not as great as could be desired or expected, although they might be better, they must not allow themselves to be discouraged from giving the mine a fair trial; and he hoped and trusted that such results would follow the work he had assisted. Captain Brokenstar said that, on Saturday last, he had mentioned that he had had an opportunity the previous day of conversing with a gentleman who had just returned from Brazil, after having been engaged in the working of a mine almost in the immediate neighbourhood of Rossa Grande. Not long before he left Brazil he had occasion to visit the Rossa Grande, and, thinking it would be agreeable to the shareholders if he were present to-day, he (the Chairman) had asked him to attend the meeting. He was the son of Capt. Bryant, who was well known in the mining world. Having stated that four selected miners, together with Mr. W. W. Evans as manager, and Mr. Forster as engineer, had left on Saturday last for the Rossa Grande, he concluded by proposing that the resolution passed at the previous meeting be now confirmed.

Mr. DURRELL reminded the Chairman that he had omitted to mention the amount of the call the directors had just made.

The CHAIRMAN said it would not amount to the maximum empowered by the Articles.

Capt. BRYANT, replying to questions, stated that he visited Rossa Grande at the beginning of March, and all he could say was that from the situation of the property—unquestionably the best in Brazil—he considered it at least a very fair speculation.

Mr. FIELD asked what was the general opinion of the property in the district? Captain BRYANT said there were many reports upon it, written at different periods, the whole of which, without a single exception, described the property as very rich. He further stated that he had recently seen a Brazilian, who purchased a great deal of the gold produced at Rossa Grande during its former workings, and from whom he learnt that the returns used to average about 400 to 500 ozt. per month, and that after a discovery was made, the returns amounted to 1500 ozt. monthly.

Mr. WHITE (a director) asked Captain Bryant if he had seen the workings from which these returns were made? Captain BRYANT said that at present they were filled up.

The CHAIRMAN said the bill were open, where a man had been sinking for some years, and up to the time the company purchased the property. The formation was very large, and there were considerable quantities of stuff to be taken away that would pay well. The CHAIRMAN said they would now have power to open out the mine, and to make sufficient returns to enable them to really test the value of the property.

A SHAREHOLDER asked if the property was anywhere near the St. John del Rey Mines? The CHAIRMAN said it was within a few miles of that property, and in the same chain of mountains, ranging as far as Rio de Janeiro, and west to Morea Valho. Shareholders should recollect that even St. John del Rey had its trials, and that at first it was unsuccessful, but by perseverance had established a success which was world-famed; and all they could hope was that Rossa Grande, when developed to a similar extent, would not prove an unworthy neighbour. (Hear, hear.)

The CHAIRMAN, in reply to a remark relative to the extent of the water-power, stated that that was a point which had occasioned him very great anxiety, but after obtaining all the information he could glean, he had come to the conclusion that, although the water-power was not large, it could be utilised in such a manner as to give all the power required. (Hear, hear.)

Capt. BRYANT stated that the Chairman was quite correct in his conclusions. In answer to further questions, he repeated that, looking at the district, and number and character of lodes in the property, he considered Rossa Grande a very fair speculation.

The CHAIRMAN, in reply to a question, stated that when the Stock Exchange gave the company a settlement it was upon the condition that such a resolution as that now before the meeting should be passed. So that when it was passed a copy would be forwarded to the Stock Exchange, showing them that the company had fulfilled its promise.

Mr. HOLMES (a director), in seconding the proposition, stated that the board had that day made a call of 2s. 6d. per share, which the whole of the directors present had paid. They were all very large holders, his own interest being 2000 shares—that was the best evidence they could give of their opinion of the bona fides of the undertaking. (Hear, hear.)

The CHAIRMAN trusted he had said nothing to induce shareholders to suppose that immediate profits would be realised, or, on the other hand, to discourage a fair and proper working.

The question was then put, when the motion was carried unanimously. Upon the proposition of Mr. FIELD, seconded by Mr. M. M. M., a cordial vote of thanks was passed to the Chairman for his able and lucid statement of the position and prospects of the company, and to the board of directors for their satisfactory conduct of the company's affairs.

The CHAIRMAN, on behalf of himself, thanked the shareholders for the flattering compliment they had paid him, and on behalf of the board for the confidence that was continued to be reposed in them. He could assure them that on principle they would endeavour to promote the best interests of the shareholders, as well as their own, and he could only hope their efforts would produce such results as would be satisfactory to all.

The proceedings then terminated.

SORTRIDGE CONSOLS MINING COMPANY.

A general meeting of shareholders was held at the London Tavern, on Thursday.

Mr. M'CALLAN was in the chair.

The accounts showed a loss on six months' working, ending April 30, of 12777.9s. 8d., and a balance in favour of the mine of 12834.0s. 9d. A call of 2s. 6d. per share was made.

A SHAREHOLDER wished to call attention to the circumstance that this credit balance included the arrears of calls on 2091 of the 12,000 shares, which had been either forfeited or relinquished.

Mr. COHEN (the secretary), in answer to a Shareholder, stated that the machinery had cost 22991.17s., and it was said to have been roughly estimated as worth 1200l.

The reports of Capt. James Richards, the manager, and of Capt. Jackson, the resident agent, were then read. They stated that the ground in the shaft at the depth of 122 fms., and the cross-cut thence, now driven to the extent of 3 fms., to intersect the lode, was highly mineralised. The lode in the 122 was intersected after about 2 fms. additional driving; the requisite cross-cut being about 5 fms. in length. The junction at the depth of about 140 fms., where it is confidently expected that large deposits of ore will be discovered, and a good mine opened up. No ore of importance had been found below the 50, and it is recommended that all the upper drivings be at once suspended, confining the operations to the exploration of the 122 fathom level, which will shortly be intersected; and to sinking the shafts to the junction of the lode in the 140; this junction, to which the attention of the shareholders should be steadily directed, will be reached in about ten months from the present time. It is estimated that during the next six months about 25 tons of ore will be raised bi-monthly, at a cost of 210l. per month.

The CHAIRMAN said that of all the mines in which he was interested he could not name one that had a better chance of success than Sortridge Consols, provided the shareholders perseveringly seconded the intentions of the committee of management to sink the shaft without delay to the 140 fm. level. Mr. JOSEPH, member of the committee, said he was a large shareholder, and held opinions equally sanguine as to the result.—It was then moved by Mr. LATIMER, seconded by Mr. THORPE, and carried unanimously, that a call of 2s. 6d. per share be now made.—On a motion that Mr. Cohen, the secretary, be appointed purser, to facilitate the recovery of the arrears of calls, and which was unanimously agreed to, a shareholder expressed his great satisfaction with the able performance by Mr. Cohen of the duties of the secretary's office, and the admirable way in which he kept the mine accounts. The committee of management were re-elected, and the cordial thanks of the meeting accorded to them for their gratuitous services, and to the Chairman for his courteous conduct in the chair that day.

THE LAW OF LIMITED LIABILITY.—Several of last week's papers contain remarks upon Vice-Chancellor Wood's judgment in the case of the Anglessea Colliery Company, 14 W. R., 708, showing the most total misapprehension of the nature of that decision. It is not the case, as there represented, that the Vice-Chancellor has

held that the holders of fully paid-up shares are liable to further calls, but the holders of shares not fully paid are liable to calls made for the sole purpose of adjusting the equities between them and the fully paid-up shareholders, and that these latter are "contributorily" for that purpose—for the purpose of receiving the proceeds of, not of paying, the call.—*Solicitors' Journal*.

TRUTH'S ECHOES, OR SAYINGS AND DOINGS IN MINING.

The favourable tone which has been given to the Mining Share Market during the last three weeks has not been improved by the decline in the standard for copper ore advised by Thursday's Ticking at Redruth. This may arise from the unsettled state of the monetary market; but it is generally believed that an improvement must take place, and we would be too pleased to see the anticipated advance in the metal market both for copper and tin.

WHEAL SETONS have been in request, and dealt in at fair market quotations.—WHEAL SETONS are dull at quoted prices.—CLIFFORDS have changed hands at minimum quotations.—EAST BASKETS have been done at slightly improved rates.—WHEAL BASKETS are required for, at buyers' prices.—TREVAVANS are in request, and buyers at minimum figures.—WEST CHIVERTONS have shared in the transactions of the week, and continue in request.—CHIVERTONS MOORS have been freely dealt in, but prices have varied.—CHIVERTONS are firmer, and likely to improve in price.—CAMBRIDGE YEARS are rather quiet at present figures.—TINCROFTS have been dealt in at lower rates.—GREAT LAKES continue firm, and in fair request.—GREAT NORTH LAKES are less active at quoted prices.—CENTRAL MINERAS are freely sought for at former rates, but cannot be obtained.—CENTRAL SNAILBEACHS have been in fair demand.—FRANK MILLS have changed hands under market quotations.—EAST GRENVILLES have been rather largely dealt in, at slightly improved rates.—WHEAL GRENVILLES are rather quiet.

NORTH TREKERTS have been in good request, and numerous transactions reported.—GREAT BUSTS are required for, at nominal prices.—HALLENGRANGE and GREAT NORTH DOWNS continue quiet.—NORTH ROSSKENS are very dull, at minimum prices.—NORTH CROFTS have changed hands at nominal figures.—SOUTH CROFTS are quiet, at quoted prices.—EAST JAMES have been done at low rates.—GREAT WHEAL VORS have been freely dealt in, and maintain their prices.—EAST WHEAL LOVELLS have been sought for at buyers' figures.—NEW WHEAL LOVELLS are in good request, at nominal prices, but scarce.—ROSEWARNE UNITED and ROSEWARNE CONSOLS are rather quiet, at quoted prices.—ST. IVE'S CONSOLS have been in fair request, but scarce, at buyers' prices.—EAST ROSEWARNE and BASSER and GAVILL are offered at lower rates.—PROVIDENCE shares have been sought for under quoted figures.—EAST CARADONS have been in good demand, at higher rates, arising from improved prospects in the mine.—MARKE VALLEYS are more than ordinarily quiet.—DRAKE WALLS have been required for, at buyers' prices.—PRINCE OF WALES shares have been extensively dealt in, at advanced rates, and show a tendency to further improve, notwithstanding some slight variation in price.—CREMONA has also improved, and rather largely dealt in.—EAST RUSSELLS are required for, at buyers' prices.

EAST CARADON is represented to have improved in the 90 east, on the counter, which is worth 25l. per fathom, and opening out highly promising for further improvement. All the other recent improvements are fully maintained, and the mine generally looking highly promising.

DEVON WHEAL LOVES.—The progress made in draining the mine has enabled the agent to examine the 14 and 22 fathom levels. The former has been driven east 140 fathoms, and west 153 fathoms; the latter 30 fathoms east and 50 fathoms west. The 30 cannot be seen beyond 3 or 4 fathoms west, but is clear eastward for 100 fathoms, to a wide in the bottom of the low where the lode is about 3 feet wide, from whence some good specimens of blende ore have been broken. The working of the water to the bottom is very desirable, and every exertion is being made, when the lode represented to be so promising will be seen, and the blende in the upper levels taken away advantageously.

PROVIDENCE MINES continue to look remarkably well; and notwithstanding the depressed price of tin, made a profit of 548l. during the last quarter, arising from the sale of 134 tons of black tin, and the return for the current quarter is expected to be about the same quantity.—SHEARN CONSOLS is reported to have very much improved in two or three important points, which are likely to be of a permanent character.

GREAT WHEAL FORTY.—The mine has been improved in a few weeks since, has opened out a valuable course of tin, and still improving. The lode at present is valued at upwards of 40l. per fathom, and from the general appearance of the western ground there is every probability of the discovery becoming one of permanency.

CENTRAL MINERAS.—The lode in the rise in the back of the 30 continues productive, and, from all appearance, likely to be of some permanency. Efforts are being made to discover the run of ore which is so very good in the adjoining set, and as the present is not a great distance from the boundary, strong hopes are entertained. They have a parcel of about 11 tons of lead at surface, which is daily accumulating.

JAMES LANE.

From Mr. EDWARD COOKE:—There has been a decidedly better feeling in the market generally, and more business doing. The great influx of specie from America and other parts of the world that is now finding its way into the Bank of England in the most unprecedented manner cannot fail to influence the course of the Money Market; and in a short time, when the public are tired of hoarding the money that they have so precipitately withdrawn from the various banks, they will be seeking for favourable investments. The ruinous consequences of investing in financial companies have been most seriously manifested during the past two months. The difference in price of the shares in the London Financial Company, from the highest point they touched to their present current value, amounts to the enormous sum of 1,250,000l. A great deal of this must necessarily have been lost by some of the unfortunate shareholders, besides the responsibility of 30l. per share unpaid capital hanging over the heads of the present shareholders. Surely no unprejudiced person can but admit that even what may be termed the most risky of British Mines are safe to invest in as compared with many of these gigantic financial schemes. In cost-book mines shareholders can put an end to future liabilities by a relinquishment of their interest, while in limited liability, finance, and discount companies their liability as shareholders extends over a period of twelve months from the date of their transferring their shares. Then, with regard to good dividend mines, such as Devon Great Consols, Great Laxey, Great Vyr, Tincroft, Wheal Seton, South Darro, East Lovell, West Chiverton, and other mines that could be named, the shareholders have in them good sterling properties that now, even with the present very low price of metals, are yielding dividends of from 12½ to 20 per cent. per annum. Those who take time by the forelock, and buy into good mines at the present time, will, in my opinion, act wisely. Money will, in all probability, soon become very much cheaper, and there will be an active demand for all kinds of legitimate securities, and consequently prices will advance.

The panic that is now subsiding, will, no doubt, be followed, as panics generally are, by a great reaction, consequent upon the large amount of capital that will be seeking employment when confidence shall be once more restored. After such disasters as have recently befallen finance companies, caused, in a great measure, by their directors entering into competition with the great banking establishments of the metropolis, the public will hesitate ere they invest their money in companies whose shares are liable to 25l. or 50l. being called up. This may certainly be almost termed unlimited liability, and becomes a serious matter to the investor of limited means, who may have been induced to buy even 10 or 20 shares, with 5l. paid, under an impression that no more calls would ever be required of him. Surely such companies as the Chontales, Mineral Rights Association, or the HOLLYBUSH COLLIERY, are far preferable to invest in, with the view of getting a good return on an outlay. With regard to CHONTALES, the arrival of every mail will now be regarded with much interest. It may not be amiss to state that there has never been a foreign mining company introduced to the public whose merits were subjected to such a thorough investigation previous to a company being formed as the Chontales Gold Mines. Not only was Capt. Paul's account of their wonderful richness subject to the strictest scrutiny by one of the most careful and practical mining authorities in the world—who admitted that, while the (Capt. Paul's) accounts were certainly of the most extraordinary character, he did not doubt their accuracy—but the managing director dispatched an agent, the late Capt. Francis, in whom he had the greatest confidence, to examine the various mines for his own satisfaction. He sent home several boxes of samples from the gold-bearing lodes, at the same time stating that he had not the means of ascertaining their value, but that any quantity of the same sort could be obtained. The samples alluded to have since been assayed, and found to produce at the rate of 9 ozt. of gold per ton average; and, when it is remembered that the large profits of the St. John del Rey are derived from ore producing less than an ounce of gold the ton, it is also reasonable to suppose that the Chontales estimated his profits of 176,000l. per annum, when the machinery is erected, upon a calculation of only 1½ ozt. per ton of ore, I consider that the prospects of the Chontales Company are of the most brilliant character. If it were deemed necessary large returns of gold could have been kept up by the use of the old-fashioned mills that were used by the natives of Nicaragua. The erecting of the new machinery sent out from England is, however, of far greater importance than the temporary suspension of the returns of gold for a short period. I do not think the shareholders will have so long to wait for large returns of gold as some would lead them to believe; and those shareholders who are impatiently waiting for the arrival of a few more fortnightly mails will have ample reason to be satisfied with the result. MINERAL RIGHTS shares should be looked after, and bought at every favourable opportunity. They are certain to go to a high premium, from the great probability of the director who has proceeded to Nicaragua having succeeded in securing some valuable gold mining properties. This will be ascertained about the middle of July. With regard to the HOLLYBUSH COLLIERY and COKE WORKS as an investment, I say it most advisedly, and from having a knowledge of the property, that there is scarcely a more eligible investment to be found. There are only 4000 shares, limited to 5l. of which 2s. has been called. It is quite impossible that more than 1s. 10s. per share will ever be required, and the shareholders will be able to pay the late proprietors for the colliery. It is in full work, with 40 coke ovens returning coke regularly, and for which there is an unlimited demand at highly remunerative prices. There are other 20 ovens nearly completed. There is a guaranteed minimum dividend of 10 per cent. for two years upon the paid-up capital amply secured, although it is confidently expected that the actual profits from the returns of coal and coke will far exceed the minimum dividend alluded to. Now, here is a property producing a commodity for which there is always a ready market, and which will not be affected by either peace or war, and in which an investment may be made with the most perfect safety. The colliery and coke works are within a few miles of Newport, and may be inspected by anyone in order to test the accuracy of what I have stated as to the real merits of the property. Being on the direction of this company, I can speak more confidently about it, and I recommend it to anyone seeking a safe investment to pay them at least 10 per cent. per annum.

TREVAVAN MINE is at the present time one of the best and cheapest speculations in Cornwall. For a very small outlay, this mine contains very great chances of a prize to those who now buy the shares. I may truly say that there is scarcely any liability attending a purchase into this promising concern, as the costs of working are nearly met already by the returns, and the affairs of the company are in a very healthy state. The purser of the former company, that divided the profits, has been largely dealt in, and, although a slight reaction has taken place in the price, it should cause no apprehension to the bona fide holder. Those who hold for a few months will be enabled to realise the largest profits.

From Mr. BAKER LELAND:—The progress which the Stock and Share Markets were making towards a recovery from the shock and depression they have been subjected to has been retarded and somewhat thrown back—first, by the disapproval of the hopes that were pretty generally entertained of a settlement of the European complications without an appeal to arms; and next by the stoppage of Agria and Masterman's Bank. The last-named circumstance, though necessarily regarded as a very great calamity, involving much individual inconvenience and suffering, however favourable the results of a winding-up may be, did not come upon the City unexpectedly, inasmuch as the dead set that had been made upon it by the "bears," and which had been so long and doggedly maintained, had induced a wide-spread apprehension of its being obliged at length to succumb. The 25l. shares, which, two months ago, were selling at 53½, had been beaten down to 10½; and, although there was some recovery from that appalling quotation, the price never rallied more or permanently, and the large demands made upon its resources from India, caused by the intelligence of our panic of last month having reached Calcutta and Bombay, induced the directors to suspend further payments after Wednesday, as the most likely way of making the best of a bad job. There can be no doubt that this large and widely-

HOLLOWAY'S OINTMENT—THROAT AFFECTIONS.—All the varieties of these distressing complaints may be readily and effectively treated by rubbing this ointment twice a day upon the neck and chest, and supporting the strength by suitable nourishment. By this simple means diphtheria, ulcerated and relaxed throat, irritation of the windpipe, quinsy, and all glandular enlargements will have their progress arrested, and the throat restored to its normal condition. Holloway's ointment is the most trustworthy remedy for all internal and external throat ailments, and may be safely and effectively employed in every case, without regard to season, sex, age, or constitution. It is highly extolled for its ready cures of spasmodic coughs, chronic hoarseness, and all disagreeable discharges from the throat and nose.

boat owners on the Clyde. The thought of steam propulsion had thus been solved, and Fulton, who had made the acquaintance of Symington, had been present at the trial of the *Charlotte Dundas*, and launched the *Clyermont* on the Hudson. It was not till 1812 that the first steam passenger boat rippled the waters of the Clyde. Her proportions were illiberal. Indeed. She was only 45 feet long, with 10 feet beam, and her name was the *Comet*. She was built for Mr. Henry Bell, of the Helensburgh Baths, who had long been a zealous advocate of steam navigation. The engine was of the beam type, and worked on the bell-crank principle, the engine being placed on one side of the boat and the boiler on the other. In January, 1812, she made her first trip from Glasgow to Greenock, and great was the curiosity and interest excited along her 22 miles run. She attained the then great velocity of 5 miles an hour, and slow as that rate may appear to us, it was a great improvement upon the fir-boats which conveyed the passengers between Glasgow and Greenock. The *Comet* was rowed by 12 men, and carried 100 passengers. These latter boats were each rowed by four men, and when the wind suited, a

PONTGIBAUD.—W. H. Rickard, June 2 : Ore: The sinking of Rickard's shaft below the 100 metre level proceeds well; we have a branch of ore dropping in from the western side yielding good work. The 10 metre level south yields saving work for the first few days; the 10 metre level north yields little ore during the month. In the quartz lode 3 feet wide; the whole is coarse saving work. We have one stop in the back of this level yielding $\frac{1}{4}$ ton of ore per fathom. The 80 metre south has a kindly appearance, showing spots of ore. In the same level north the No. 2 cross-cut has cut a part of Emily's lode, which is composed of hard quartz carrying a branch of ore on its wall of good quality that will work on tribute. The slope in the back of this level is yielding $\frac{1}{4}$ ton of ore per fathom. The 60 metre south yields $\frac{1}{4}$ ton of ore per fm. We have four stopes in back of this level, north and south of shaft, yielding 1 to $\frac{1}{4}$ tons of ore per fathom. The 40, south of Agnes's shaft, is unproductive. A winze sinking in bottom of this level a little ahead of the 60 yields 2 tons of ore per fathom. We have three stopes in back of this level yielding from $\frac{1}{4}$ to $\frac{1}{4}$ ton of ore per fathom. The 20, south of Virginia's shaft, is in soft, unproductive ground. We hope soon to get into the 20, south of western part of the lode, where we have a few feet of ore. There are three stopes in the 20, south of Virginia's shaft, yielding 2 tons of ore per fathom. The addit, south of Virginia's shaft, produces a little saving work, worth $\frac{1}{4}$ ton of ore per fathom. The two stopes behind the end yield an average of 1 ton of ore per fathom. Our tribute pitches yield pretty well on the whole.—La Grange: Kosky's shaft is set to sink below the 60 metre level by six men, at 200 frs. per metre. The 60 metre level north is passing through a good piece of ground; the part of the lode carried (5 ft.) yields 1 ton per fathom; the whole value is from 3 to $\frac{3}{4}$ tons per fathom for the entire width. The ends of the 40 metre level north and south of shaft, are poor. The two stopes in back of the level, north of shaft, yield well. The 20 and the addit north are unproductive. We have six tribute pitches working, which produce good quality stuff. The addit, west from La Rancouze, is in favourable ground.—Mafne: The No. 6 lode, in the addit north, has become softer, and is without any iron value. This lode has lately passed through a promising piece of ground, producing some ore. The addit has set an adit shaft to the surface, 40 feet below the top and for ventilation.—La Broussie: The sinking of Bassin's shaft below the 40 is in soft, favourable ground. The 40 north and south of shaft, or the western part of the lode, yields ore work for the whole width of the level. The 20 south yields 1 ton of ore per fathom. The addit south yields 1 ton of ore per fm. The addit north is in very shallow ground; the lode is disordered. We have five tribute pitches working—two in the back of the 20, and three in the back of the addit, all on

BRITISH MINES.

shaft, which I have now resumed sinking (to meet the cross-cut driving from the 20) presents a hopeful appearance. Our course evidently is to resume driving the 30 north, in which direction I feel more than ever confident we may expect good results after a little more patience and perseverance.

ROARING WATER.—H. Thomas, June 5: At Gillman's engine-shaft there is an evident change of ground. Since my last branch of spar, carbonate of lime, and strong yellow ore has dropped into the shaft from the north. The branch is underlying south about 18 in. in a fathom; this branch may be taken as a good indication of a productive lode to the north, which may soon be expected to make its appearance in the shaft. Grady's Engine-shaft: The lode at this shaft is improving, and during the past week has produced exceedingly rich silver-grey ore; but, in consequence of the character of the ground, the progress in sinking is rather slow. The floors are being put in order, for the purpose of getting the ore dressed. The prospects are very encouraging.

ROSECLIFFE AND TOLGARE.—R. Pryor, James Phillips, June 6: No change worthy of notice has taken place in this mine during the past week. I will send on a setting report with full particulars next week.

ROSEWALL HILL AND PARSONS UNITED.—R. F. Trewicke, June 6: The lode in the 140 fm. level end, east of Ransom, has diminished in size and quality, and at present not of much value. The lode in the 120 east is small and poor; ground rather easier than usual. The lode in the 110 east is worth 61 per fm. The lode in the 100 east is small, but of a good quality, worth 151 per fm. The lode in the 90 is worth 81 per fm. The lode in the different stops over the 90 and 100 is worth on an average 141 per fm. The lode in the 85 fm. level end east is worth 121 per fm.; and in the stops over this level the lode is worth 101 per fm. The driving of the 170 fm. level end, east of Ransom, has been continued, and the lode in the stop behind the end, in the bottom of the level, is worth 301 per fm. Other parts without alteration.

ROSEWALL CONSOLS.—J. Nancarrow, R. Kneave, June 4: There has been no change in Ellen's shaft since last report. The 90, east of Ellen's, has reached the place where the lode usually separates; the ground is favourable for driving, but there is no ore to value. The 80 east, on the north part of the lode, yields a little ore. The stop in the back, on the south part, is worth 61 per fathom. The 70 east, on the north part of the lode, looks better; the lode is 1 ft. wide, worth 41 per fm. The stop in the back, on the south part, is worth 81 per fm. We have recently commenced driving the 30 west, where there is a promising lode, which is 1 1/2 ft. wide, and likely to produce ore. The rise above the 80, west of sump, is holed to the 70, and we have resumed the driving of both ends westward, in each of which there is a promising lode.

ROSEWALL UNITED.—Thomas Richards and Son, William Temby, June 7: The lode in the 80, west of the engine-shaft, contains some good copper ore. The men in the 70 west are at present rising in the back of this level, close to the end, to hole to the winze sinking below the 60. The rise is 3 fms. above the level, and is worth 201 per fathom. The winze sinking below the 60 is much improved, and is now worth from 181 to 201 per fathom; it is sunk 2 fms. below the 60. No lode has been taken down for the week in the winze sinking below the 40 and 50. When the lode was last taken down there they were worth about 61 per fathom each. There is no further change to notice in any of our other levels.

SITHNEY WHEEL METAL.—T. Julian, S. Harris, June 7: The engine-shaft is sunk 10 ft. below the 175, barres and clister fixed, and new lift in good order for sinking; we are now in a good position for making fair progress in sinking the shaft. The lode in the 157 east is about 3 ft. wide, composed of mangle, punch, and capel—a very kindly lode. The lode in the winze sinking below the 145 east is 2 1/2 ft. wide—unproductive. We have great reason to hope, from the very promising appearance of the lode in the 157, and also in the winze, that in the next, or 167 fm. level, the lode will become productive, and the mine altogether become permanent.

SNAEFELL.—W. Killo, June 4: The engine-shaft is now sunk 9 fms. below the 25, hence you will see that our progress is very fair. The ground in the bottom is becoming harder and more defined, and the lode producing good lumps of blende, spotted with lead occasionally. The same remark is also applicable to the 35 end, driving north; the lode large, and spotted with lead and blende, but not at present of much value. We have no change whatever in either of our ad levels. The machinery is working well, and everything going on in the usual way.

SOUTH CONDURROW.—J. Vivian and Son, W. Williams, June 2: The rods, &c., in the 40 cross-cut are now at work, and answer the purpose well in every respect. West Basement Lode: The 51 has been driven 3 fms. east and 3 fms. west of King's shaft, in which distance the lode has been about 4 ft. wide, and has been occasionally rich in copper, but the ends, although still producing copper, and the lode maintaining its size and highly favourable character, are not so valuable as they have been. The character of the lode has so improved in sinking from the 40 to the 51 that we think we are fully warranted in looking forward to a discovery of much greater importance in sinking below the 51, and we shall resume this operation in a fortnight. In the 40, west of King's shaft, the lode is large, and we are still in decomposed ground. In the 30 west the lode is split into branches. In the 20 west there is no alteration to report on, as we have been rising along Vivian's shaft, and have communicated. We are now cutting down the shaft to its full size. In the 20, east of King's shaft, the end is still passing through a hard mass of ground, in which the lode is small. The character of the 20, west of Vivian's shaft, the lode is 1 1/2 ft. wide, composed of quartz, prill, gossan, and spots of yellow copper ore. Middle Lode: In the 30, east of engine-shaft cross-cut, we are still cross-cutting north towards the north part of the lode. In the 20 east the lode is 1 ft. wide, and producing a little tin. In the 10 east the lode is 2 ft. wide, and producing tin, worth about 51 per fm. In the 40 cross-cut, north from the engine-shaft, we have easier ground, and, therefore, hope to intersect the engine lode shortly.

SOUTH DOLCOATH.—W. Roberts, June 6: The following tawerk bargains were set on Friday last:—The 30, east of the 15, was set by two men, at 41 per fm. The 40, east of the 30, was set by two men, at 41 per fm. The 50, east of the 40, was set by two men, at 41 per fm. The 60, east of the 50, was set by two men, at 41 per fm. The 70, east of the 60, was set by two men, at 41 per fm. The 80, east of the 70, was set by two men, at 41 per fm. The 90, east of the 80, was set by two men, at 41 per fm. The 100, east of the 90, was set by two men, at 41 per fm. The 110, east of the 100, was set by two men, at 41 per fm. The 120, east of the 110, was set by two men, at 41 per fm. The 130, east of the 120, was set by two men, at 41 per fm. The 140, east of the 130, was set by two men, at 41 per fm. The 150, east of the 140, was set by two men, at 41 per fm. The 160, east of the 150, was set by two men, at 41 per fm. The 170, east of the 160, was set by two men, at 41 per fm. 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The adjustable pressure board in combination with the pump and sieve of a flaging machine. In combination with the sieve of a flaging machine the passage and shoot board, substantially as and for the purpose set forth.

MINING NOTABILIA.

(EXTRACTS FROM OUR CORRESPONDENCE.)

NEW PEMBROKE.—We are glad to hear of an improvement in this mine. In the 60 east we have a valuable lode, the south part of which is splendid copper ore for 18 inches wide, and the north part of the same producing some good work for tin. In the 45 west we have driven through a good lode for tin for 5 fathoms in length, and the end still continues its value; the prospects of the mine never looked so well as at the present time. An Old Pembroke Mine, whose late workings are only about 200 yards to the west of New Pembroke, and in which fortunate adventurers realised a profit of upwards of 200,000l., we consider our prospects to be very encouraging. The agents' report will appear in next week's Journal.

CENTRAL MINERS continues to look well. Nearly 12 tons of lead have been brought to surface during the last month's working, much more than sufficient to pay all the month's cost, and the lode looks as well as ever. Other important discoveries are daily looked for, as from the large quantities that have been raised near the boundary in the adjoining sett, from which the lode dips into Central Miners, the ground is known to be full of lead.

GREAT WHEAL FORTUNE.—Both the 114, west of Hosken's shaft, and also the lode in Hosken's shaft, have further improved. The 114, east of Carmuel shaft, is better than when last reported. The agents say there is no question but they have arrived at the commencement of a new course of tin, but until the same is properly laid open the actual value cannot with accuracy be ascertained. Capt. Gill, late of Great Wheal Vor, is inspecting this mine for a large shareholder, a report of which will be published in the Journal before the forthcoming meeting. Hosken's shaft will be to the 126 in about ten days' time.

DEVON GREAT MARIA is looking exceedingly well, and the deputations at present surveying the property and arranging for the erection of efficient machinery reports that the most sanguine expectations will be fully realised. They cannot see why, under proper management, this sett may not be expected to rival her rich neighbour, Devon Great Consols.

THE CROWN SLATE AND SLAB WORKS.—In my wanderings through the sterile, but nevertheless picturesque, mountains of Merionethshire, and in the vicinity of Degeley, I started from the road direct to the mountain celebrated as the chair of the myological giant Idris. Howbeit, when so wending my way, I came to a very romantic plantation of fir trees, where I found a number of quarrymen at work opening what they told me was a slate quarry. Being very civilly treated by the person in command, I manifested a curiosity to know something about slates and slate dressing, being, as you may suppose, a novice in what forms the great mineral wealth of North Wales. He very kindly took me to the slate dresser, who, merely to satisfy me, performed what I consider a wonderful feat—from a block of slate scarcely an inch thick he split in my presence 21 thin (of course) slates. They looked leaf-like and smooth, and greatly captivated my attention. I understood that the quarry is being worked (which has only commenced a very few weeks ago) by a company known by the name of the Crown Slate and Slab Quarry Company. I hope that this company can fully appreciate such a property, and that they will demonstrate and fully develop by their spirited enterprise what has been for ages lying hidden, uncared for and unnoticed, in the Idris mountain range.—STROLLER.

RATING OF MINES BILL.—It will be recollected that a few weeks since Mr. Cave introduced a bill into the House of Commons, the object of which was to render mines and minerals of every description in England and Wales liable to be rated to local rates "in the same manner and to the same extent, so far as circumstances will admit," as coal mines are now rated. The inability, under the present depressed circumstances of metalliferous mines to support any additional burden was at once pointed out, and it was urged that if any measure was to be passed for the assessment of metalliferous mines to local rates the rating should be assessed upon the royalty or dues. Messrs. Robartes, Kendall, St. Aubyn, and other members connected with the mining interest, have had a meeting with Mr. Cave, the promoter of the bill, and stated to him that unless he consented to refer the bill to a select committee they must oppose the second reading of it in the House. The bill did not come on on that day, and they have reason to hope that Mr. Cave will consent so to refer it to a select committee. The basis on which the Cornish members wish to put the question is—"That the lessor of mines and minerals of every description shall be rated, on the basis of the royalty, to local rates; and that, as regards tin, lead, and copper mines, the assessment shall be made on and paid by the lessor, due allowance being made for the exhaustion of the corpus."

BANQUET TO MR. POWNING.—On Tuesday evening the leading members of the Mining Exchange, and several influential gentlemen otherwise connected with mining enterprise, entertained Mr. Powning (of Gresham House) at a banquet, which took place at the London Tavern. The entertainment was given as a mark of appreciation of his laudable efforts to promote legitimate mining, and an earnest of the personal esteem in which he is held by those who had invited him as their guest. The chair was occupied by Mr. Peter Watson, and the vice-chair by Mr. E. Cooke.

GREAT LAXEY MINING COMPANY.—On Friday next the directors of the Great Laxey Mining Company (Limited) will meet at their offices, Douglas, Isle of Man, for the purpose of declaring the usual quarterly dividend of 10s. per share, on 15,000 shares, amounting to 7500l.

CHONTALES.—The shares of this company have not gone down in price, as some people wished, and probably believed, and we have no doubt that our plain statements of the facts of the case have in a great measure contributed to prevent the shareholders sacrificing their interests. Notwithstanding the panic, and the continued state of severe depression in the markets generally, the Chontales shares have not only stood their ground, but have rather risen in price. This week they are exceedingly firm, and the speculators are at their wits end to know how to find the shares to supply those to whom they have sold. Before the next number of the Mining Journal appears, another mail will be due, and by it, or any subsequent one, most important news may be received, quite irrespective of the remittances of gold, which may be looked for in a very few months.

COAL MARKET.—The fresh arrivals this week only amounted to 78 ships. Household coal has continued a steady business, at about last week's prices. Hartley's have been a dull sale, and quote a reduction of 6d. per ton. Hetton Wallsend, 18s. 3d.; Haswell Wallsend, 17s. 9d.; Braddly's Hetton Wallsend, 17s.; Heugh Hall Wallsend, 17s.; South Kellow Wallsend, 17s.; Hetton Lyon's Wallsend, 15s. 9d.; Tunstall Wallsend, 15s. 9d. Unsold, 2 cargoes: 75 ships at sea.

THE COAL TRADE.—Mr. J. R. Scott, the Registrar of the London Coal Market, has published the following statistics of imports and exports of coal into and from the port and district of London, by sea, railway, and canal, during May, 1866:—

BY SEA.	BY RAILWAY AND CANAL.
Newcastle.....Ships 209.....Tons 109,874	London and Nth.-Western.....Tons 90,189 17
Seaham....." 35....." 8,520	Great Northern....." 69,770 0
Sunderland....." 124....." 56,853	Great Western....." 28,494 0
Middlesboro'....." 15....." 4,400	Midland....." 11,857 17
Hartlepool....." 116....." 35,312	Great Eastern....." 24,072 5
South....." 12....." 453	London, Chatham, and Dover....." 156 5
Scotch....." 3....." 2,085	London, Tilbury, and Southend....." 35 0
Welsh....." 17....." 5,470	South-Eastern....." 728 1
Yorkshire....." 9....." 1,532	Grand Junction Canal....." 879 5
Small coal....." 3....." 789	
Cinders....." 3....." 280	
Total.....545.....225,648	Total.....226,168 10
May, 1865.....563.....229,024	May, 1865.....201,153 3

COMPARATIVE STATEMENT—1865 AND 1866.

BY SEA.			BY RAILWAY AND CANAL.		
Ships.		Tons.			Tons. Cwts.
1 to May 31, 1865.	3480 ..	1,389,963	Jan. 1 to May 31, 1866	1,187,266	19
1 to May 31, 1866.	3040 ..	1,259,952	Jan. 1 to May 31, 1865.....	1,142,443	10
Decrease present year	440 ..	130,011	Increase present year	44,823	9

EXPORTS.

Export List, showing the distribution of coal imported into the port or district of London, by sea, rail, and canal, and afterwards exported coastwise or to foreign parts, or sent beyond the limits of the London district, by rail or inland navigation, during May 1866:—	
Railway-borne coal passing "in transitu" through district.....Tons 21,503	
Sea-borne coal exported to British possessions or to foreign parts, or to the coast.....Tons 20,933	
Ditto, sent beyond limits by railway.....17,077	
Ditto, by canal and inland navigation.....4,758=42,518	
Railway-borne coal exported to British possessions or to foreign parts, or to the coast.....5,519	
Ditto, by rail beyond district.....21	
Ditto, by canal and inland navigation.....479=5,019	
Sea-borne coal brought into port, and exported in same ships.....440	
Total quantity of coal conveyed beyond limits of coal duty district during May, 1866.....70,080	
Ditto, May, 1865.....66,112	

NEW MODE OF DESULPHURISING.—Messrs. Tait and Avis, of New York, have patented a process of desulphurising sulphurets by a current of heated compressed air, impelled by an air-pump, in combination with a closed furnace containing the ore. They also claim in their process the use of nitro-oxide gas in combination with atmospheric air; also the use of steam in combination with the heated air.

ALUMINIUM ARMOUR.—A trial has just been made at Florence of a cuirass in aluminium, which is as light as an ordinary waistcoat, nearly as flexible, and capable of turning a musket ball fired at the distance of 35 paces, and of resisting a bayonet thrust from the heaviest hand. Each cuirass costs only 25 frs. Two regiments are, it is said, to be immediately provided with them.

The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, JUNE 8, 1866.

COOPER.	£ s. d.	£ s. d.	BRASS.	Per lb.
Best selected.....p. ton	89 0 0	—	Sheets.....	94. —
Tough cake & tile ..	86 0 0	—	Wire.....	84. —
Burra Burra	90 0 0	—	Tubes.....	11d. —
Copper wire.....p. lb.	0 11 3	—		
dittotubes.....	0 12 4	—		
Sheathing & bolts p. ton	91 0 0	—		
Bottoms.....	96 0 0	—		
Old (Exchange).....	77 0 0	—		
	Per Ton.			
Bars Welsh, in London.....	7 10 0	8 0 0		
Ditto, to arrive.....	7 10 0	7 12 6		
Nail rods.....	8 7 0	9 5 0		
Stafford, in London.....	8 15 0	8 17 6		
Bars ditto.....	8 15 0	8 10 0		
Hoops ditto.....	9 15 0	10 10 0		
Sheets, single.....	10 7 6	11 0 0		
Pig No. 1, in Wales.....	4 5 0	4 10 0		
Refined metal, ditto.....	4 0 0	5 0 0		
Bars, common, ditto.....	6 15 0	7 5 0		
Do, merch., Tynes or Tees.....	7 10 0	—		
Ditto, railway, in Wales.....	6 10 0	6 15 0		
Ditto Swed., in London.....	11 10 0	—		
To arrive.....	11 10 0	—		
Pig, No. 1, in Clyde.....	2 11 0	2 16 0		
Ditto, f.o.b. Tynes or Tees.....	2 9 6	—		
Ditto, Nos. 3, 4, f.o.b. do.....	2 6 6	2 5 6		
Railway chairs.....	5 10 0	5 15 0		
" spikes.....	11 0 0	12 0 0		
	Per Ton.			
English Pig, common.....	20 15 0	—		
Ditto, ordinary soft.....	21 0 0	21 5 0		
Ditto (WB).....	21 0 0	—		
Ditto sheet.....	21 15 0	—		
Ditto rod.....	23 10 0	24 0 0		
Ditto white.....	27 0 0	28 0 0		
Ditto patent shot.....	23 15 0	24 0 0		
Spanish.....	20 5 0	20 10 0		
	At the works, 1s. to 1s. 6d. per box less.			

REMARKS.—The abandonment of the Conference on European Affairs has entirely removed all hopes that war might be prevented on the Continent; and there now seems no doubt that it must be left to the three Powers principally concerned to decide their disputes by the force of arms. It is much to be deplored that a more satisfactory result could not be obtained, as commercial matters must necessarily materially suffer while the war is in progress; besides that, it is impossible to foresee what may eventually be the result of this contest, and what other Powers may be drawn into the strife, when once the flames of war are lit up on the Continent. The unfortunate failure of the Agra and Masterman's bank, which was announced on Thursday morning, will also tend very seriously to check any returning confidence which might otherwise have arisen; more especially as the influence of the fallen establishment is not confined alone to this country, but extends to India, China, and Australia, where the effects of the stoppage will be seriously felt; and we fear will, for a time at least, be most prejudicial to all business transactions. The Metal Market will, of course, suffer with other branches of trade by these various untoward events; and we must expect that the present state of dulness and inactivity will last for some time longer.

COOPER.—The general stagnation in business has affected the position of this metal, and prevented any improvement which might otherwise have taken place. The market continues very dull, and operations are trifling.

IRON.—In Staffordshire there are a few orders from the United States, but only for small quantities; the demand for iron, however, generally is very slack, and few of the works are in full operation. The demand for the German market, which is of some importance in Staffordshire, has almost ceased, owing to warlike preparations going on there. Prices have not, however, fallen very much, either of manufactured or pig-iron, a reduction of from 2s. 6d. to 5s. being the utmost that has been made. In Welsh the trade remains in about the same quiet state as last week, and but few orders have come to hand, which are principally from the foreign markets. There have also been some transactions on home account, and a more hopeful feeling is springing up as to the future. It is well known that there are plenty of contracts to be given out, and stocks are low both at home and abroad; but the present high rate of discount keeps buyers back from giving out their orders. Considerable shipments of railway iron are still made to the United States, British North America, and the markets in the Baltic; and, should confidence be restored in financial circles, there is every probability of an improvement in the American trade. Business with the East remains without change, the advances not being very encouraging. The threatened war has led to the withdrawal of several orders which were in the market for Southern Europe. In Swedish iron the market at present is very quiet. In Scotch pig-iron the market has been dull during the week, and prices have again declined. The last advices from Glasgow state the price to be 50s. 9d. cash.

LEAD continues in only limited request, and prices have become somewhat easier, the present quotations being 20l. 15s. for common English pig, 21l. to 21l. 5s. for LB, and 22l. 10s. for WB.

TIN.—No alteration has taken place in the price of foreign during the week; small sales of Straits have occurred at 75l. cash, and for fine square bottoms at 76l. cash, and there appears more disposition to sell at these prices, although very little business is done. Banca is still quoted at 77l. The stock of tin in warehouse in London, on June 1, was 3201 tons, against 2734 tons same time last year, and the quantity of Straits afloat for Europe is 1149 tons, against 1397 tons same time last year.

SPELTER.—The amount of business transacted is very limited; some parcels have been sold, ex ship, at 19l. 15s., and for parcels on the spot the quotation is 20l. The stock in London, on May 31, was 5787 tons, being an increase of 335 tons during the month.

TIN-PLATES.—The trade remains inactive.

STEEL AND QUICKSILVER continue without alteration.

THE IRON TRADE.—[GRIFFITHS'S BI-WEEKLY REPORT.]

WOLVERHAMPTON, JUNE 8.—Our meetings on the Wolverhampton and Birmingham Exchanges this week have mustered in good numbers; nevertheless, we have a complete pause in business in all departments. Numerous large orders for finished iron are countermanded, and the market for pig-iron is quite neglected; a great majority of the manufacturers are complaining bitterly, and matters are evidently progressing to a dead lock. The failure of the Agra Bank has alarmed the trade considerably; our very best orders for Staffordshire iron during the last two months have been supplied by Melbourne and Sydney, Calcutta, Bombay, and Madras, and Shanghai and Hong Kong are the ports we depend upon for orders and remittances for the far-famed nail-roads of South Staffordshire. The Agra and Masterman's Bank had banking houses in all these ports, besides establishments in Agra, Lahore, and Kurrachee. The banking facilities rendered to the flourishing trade of all these ports and cities by the Agra Bank cannot be over-rated, and the unfavourable effect felt in this country by the stoppage of the bank will be of a most serious character. On the Birmingham Exchange it was frequently asked whether the same process of depletion is to continue until other institutions of the same importance to the real trade of the country are victimised. Can the Government do nothing in this state of things? or will the Government still remain passive while the most useful and solid banking corporations of this country are deliberately slaughtered one by one, thus gradually, but effectually, closing up the sluices of commerce, and thereby creating a state of disorder in the finances of the empire which may not be rectified for years to come? Something must be done, and that quickly. It is hoped that this subject may at once have the serious consideration of Mr. Gladstone and Mr. Goschen before it is too late, as the deplorable system may be more generally applied. What if the provinces are attacked; this is fearful to contemplate. The remedy is easy and simple. Let the Government, then, consult the interests of the great trading community, whose best interests are identified with the sound joint-stock banks, and eschew the narrow-minded policy which reigns in Threadneedle-street.

BIRMINGHAM, JUNE 8.—Rylands' "Iron Trade Circular" says:—Better business in manufactured iron, but not much. Pigs slackening in price, (say) 5s., except for special brands, to tempt buyers, who are few.

NEW YORK, MAY 24.—The price of Scotch pig has advanced materially, as a consequence of the rise in gold. At the close of last week there were sales of about 2000 tons of Scotch pig, at prices before the present advance; but there have been no sales at the advanced prices, and the market has been quite unsettled. American iron is in good supply, and there is enough in market for the demand. The price of American pig has not been advanced on account of gold yet, but is firm, and has an upward tendency. Bar-iron is in good supply, and well sustained in price. The business has been fairly active. New sheathing copper and yellow metal are unchanged. In ingot copper there has been considerable business, and the market has been more active than for some

time. Prices are higher, with a firmer feeling. Late advices from Chili state that the shipments for January, February, and March were 15,000 tons, which was the average quarterly shipment for the last nine months of 1865. The price of pig lead is unchanged. The market is quiet, but very firm. Pig tin is unchanged; there is but little doing, and prices have been rather in buyers' favour. The advance in gold tends to make plates more firm, and quotations in some brands are advanced. The stock on hand is large, and amount of business small.—Iron Age.

A question of some importance to shareholders in cost-book mines (as managed in Cornwall) has just been raised by the Vice-Warden of the Stannaries Courts; and it has given rise not only to much comment, but to much misconception. In course of an enquiry incidental to the case of Watson v. Tom, which was a pursuer's suit for the recovery of calls in arrear, the Vice-Warden gave it as his opinion that at a meeting for the purpose of making a call, the majority of shares should be represented. Now, in ordinary cost-book mines, managed in Cornwall, where pursers and managers have always had an unconquerable aversion to rules and regulations, we have no doubt the ruling of the Vice-Warden applies, and in order to show that it does not apply to great numbers of mining companies, it will be necessary to enquire a little into the Cost-book System, and see what it is. In the first place it is a mutual partnership, and when a mine cost-book is formed, certain parties sign it, binding themselves to pay their proportion of costs, &c., in accordance with the number of shares they hold respectively, the whole number being divided into (say) 1000 shares. This is the simple and ordinary form of the cost-book of Cornwall, and shares are transferred by the ordinary form of transfer, parties accepting shares taking them subject to the general law of the cost-book, the custom of which is that meetings of the shareholders shall be held every two months, or quarterly, when all accounts shall be produced, and a balance-sheet made out, showing the exact financial position of the company. If there is a debt—say, for example sake, of 5000l.—it has, according to Stannaries law and custom, to be divided, and a call of 10s. per share made upon the holders of the 1000 shares, and for this purpose the Vice-Warden says there should be a majority of shares represented at the meeting.

We now come to the greater number of cost-book mines, managed in London under special rules and regulations drawn up by counsel 20 years ago, and which, keeping to the Cost-book System in its strict integrity, supply rules and directions for carrying it out. In this case all who form the cost-book sign the usual declaration, and in addition bind themselves and all who accept transfers from them or their assign to the "rules and regulations annexed"—that is, entered in the cost-book. Of these rules No. 2 states:—The committee (or pursuer or secretary, as the case may be), shall appoint a general meeting once in two or three months.—No. 3. That they shall exhibit at such meetings the accounts made up to the latest convenient period, and shall produce all books, accounts, &c., to the inspection of shareholders.—No. 4 says:—"The shareholders shall either pass or reject the said accounts, and shall vote funds and make calls necessary for the prosecution of this adventure, and shall determine on all matters of business appertaining to the same, such determination to be decided by the majority of votes present, either in person or by proxy, and shall be binding on all shareholders, whether present or not, notwithstanding such majority of votes may not represent a majority of shares in this adventure." It is only necessary to state further, in order to put the question entirely at rest, that a cost-book mine was lately wound-up in the Stannaries Court at Truro, and that calls had been made at meetings not represented by one-tenth of the shareholders, but under the rule just quoted they were decided to be perfectly legal. We may add that in order to make these rules effectual they must be subscribed to by every shareholder, and for this reason it is almost impossible to add them to an existing cost-book, but no cost-book company should be formed without them, and on its formation every share should be signed for subject to them.

We may also state that as the principle of the cost-book is a mutual partnership, in which a shareholder can be made individually liable to the creditors of a mine, he can be sued for the whole debts if he refuses to pay his rateable proportion, and it would be a very unwise thing, therefore, to dispute the legality of a call, which protects him from a much greater liability.

The MINING SHARE MARKET opened this week with some little activity, and there has been a fair amount of business transacted in different mines, but the chief attention has been directed to low-priced and hitherto depressed shares. The fall in the standard on Thursday, when a rise was rather looked for, caused some disappointment, and rather more depression in copper mines. Lead mines kept firm, and are most in favour. East Wheal Grenville shares have been more in demand, and leave off 2½ to 2½; the 85 west seems to be getting clear of the horse, and may shortly get into the course of ore passed through in the 75. The lode in the stope is worth 3 to 4 tons of copper ore per fathom, besides good tin. The stopes below the 75 west are worth 3 tons of copper and good work for tin, worth altogether 20l. per fathom. Chiverton Moor, 5½ to 6; Chontales Gold, 3½ to 3½. Wheal Basset, 80 to 85; at the meeting held on Tuesday the accounts showed a profit on two months' working of 240l. 3s., and a balance to next account of 882l. 18s. 9d., after declaring a dividend of 1l. per share (512l.). The report states the prospects of the mine are much the same as for some time past. Clifford Amalgamated, 8½ to 9; Devon Great Consols, 440 to 450; East Basset, 13 to 15; East Lovell, 7 to 8. East Caradon shares have again advanced to 6½; the mine continues to improve. The 80 east, on the caunter lode, is worth 15l.; the 90 east, 25l.; the 70 east, on south lode, 15l.; the 70 west, 20l.; and the 80 east, 5l. per fathom, from which it will be seen that the south lode is turning out more favourably. The 70 west, on the new lode, is worth 8l., and the ends in the aggregate 88l. per fathom. East Russell, 2 to 2½; Fronto and Bolivia, 15s. to 17s. 6d. Redmoor shares have been enquired for at 2s. 6d. to 5s., and some interest attaches to the discovery of silver, and what it is likely to turn out. Great North Laxey, 1½ to 2; the lode in the shaft continues worth 2 tons of lead ore per fathom, the 72 north 1 ton, and the stopes productive. Great Laxey, 20½ to 21½; Great Wheal Vor, 17 to 18; Marke Valley, 3½ to 3½; North Trekerby, 2½ to 2½; Prince of Wales, 9s. to 11s., and largely dealt in. South Condarrow, 17s. 6d. to 22s. 6d.; South Darren, 3 to 3½; St. Ives Consols, 6 to 7; Tincroft, 9 to 10; West Chiverton, 6½ to 7; Wheal Chiverton, 6 to 6½; Wheal Crebor, 9s. to 11s.; Wheal Grenville, 1½ to 2, and enquired for. Wheal Seton, 180 to 185. Camborne Vein, 20s. to 25s.; the 150 east continues worth 4 tons of copper ore per fathom; the 150 west 4 tons. The sampling will be in a fortnight, 50 tons of copper, raised from the ends in one month.

The market for mine shares on the Stock Exchange, in common with the other security markets, is completely paralysed. The transactions are unimportant in amount, and almost without exception at lower prices. It may, however, be remarked that mines have suffered less than many other securities. St. John del Rey shares have been dealt in to some extent, and close 50 to 52; the dividend to be declared at the forthcoming meeting, for the half-year, is 4l., and the accounts will show a credit balance, after paying the same, and adding the usual 10 per cent. on dividend to the reserve fund. The mines are looking well. Cobre shares are firmer, at 18 to 14, and enquired for; English and Australian Copper, ½ to ½; Don Pedro, ½ to ½; Anglo-Brazilian, ½ dis. to par; Cape Copper, 2 to 2½ prem.; Port Phillip, ½ to ½; Central American, ½ dis. to ½ prem.; Mineral Rights, ½ dis. to ½ prem.; Washoe Gold, nominally ¼ to 1½; Fronto, ½ to ½. Chontales, 1½ to 1½ prem.; these shares are in demand for delivery. In British Mines Great Laxey shares are steady at 20½ to 21½; Great Vor, 16½ to 17½. Chiverton, 6 to 6½; the lode in Cookney's shaft has improved to 4 tons per fathom; other parts of the mine are officially reported as looking well. West Chiverton, 68 to 70; the mine never looked better. Chiverton Moor, 5 to 5½; the general prospects of the mine are good.

IRISH MINE SHARE MARKET.—The market opened in the early part of the week with an ordinary amount of activity, but in consequence of unfavourable reports continuing to arrive from all parts of Europe, both as to political and financial difficulties, business has, therefore, not been well supported. Mining Company of Ireland shares (7l. paid), which last week brought 18l. 10s. per share, have gradually dropped to 17l. 12s. 6d. for cash. For time they were not dealt in, though a better price was offered. Wicklow Copper shares (2l. 10s. paid) advanced from 23l. for cash, our last quotation, to 23l. 12s. 6d.; however, this rise, coupled with a general tendency unfavourable to all kinds of investments, has created a desire to realise; and, on the other hand, lessened the demand, resulting, as might be expected, in a temporary cessation of transactions in these shares. Connemara shares have also suffered depression, and are now on sale at 17s. 6d. General Mining Company for Ireland shares have since the meeting of shareholders, noticed below, declined to 2l. 3s. 9d. (5l. paid), chiefly in consequence of the very favourable prospects of the ultimate

Copper ores for sale at the Royal Hotel, Truro, on Thursday week.—Mines and parcels.—Devon Counties 1790—Marke Valley 427—East Caradon 330—Brookwood 280—Wheal Friendship 158—Bodford United 139—Gunnislake (Clitters) 106—Wheal Craisake 90—West Maria and Fortescue 60—North Wheal Robert 35—Wheal Edward 29—Sortridge Counties 28—Hawkmoor 24.—Total, 3460 tons.

NO SALE on Thursday next, June 14.

WATSON AND CUELL'S MINING CIRCULAR.

WATSON AND CUELL,
MINING AGENTS, STOCK AND SHARE DEALERS, &c.,
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Messrs. WATSON and CUELL having made arrangements for transferring their weekly Circular, which has had so large a circulation during the past ten years, to the columns of the *Mining Journal*, their special reports and remarks upon Mines and Mining, and the state of the Share Market, will in future appear in this column.

In the year 1843, when Cornish mining was almost unknown to the general public, attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. J. Y. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring success in the aggregate," and Messrs. WATSON and CUELL have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and share dealing than there is at present; and, from the lengthened experience of Messrs. WATSON and CUELL they are emboldened to offer, thus publicly, their best services to all connected with mining, the market, as they have for so many years done privately, through the medium of their own Circular.

Messrs. WATSON and CUELL transact business in the purchase and sale of mining shares, and other securities, payments of calls, receipt and transmission of dividends, obtaining information for clients, and affording advice, to the best of their knowledge and judgment, based on the experience of more than 30 years active connection with the Mining Market.

Messrs. WATSON and CUELL also inform their clients and the public that they transact business in the public funds, railway, docks, insurance, and every other description of shares dealt in on the Stock Exchange.

Messrs. WATSON and CUELL are also daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

Messrs. WATSON and CUELL having agents and correspondents in all the mining districts, and an extensive connection among the largest holders of mining property, have the more confidence in tendering their advice on all matters relating to the state and prospects of mines and mining companies, and are enabled to supply shares in all the best mines at close market prices, free of all charge for commission.

"X"—Great North Laxey will sample 40 to 50 tons of lead next week; the mine looks well. Shares, like most others, are quoted much lower, and now is the time to buy.

"WATSON & TOM."—We have received numbers of communications about this case, and the opinion given by the Vice-Warden in respect to making calls. In regard to the case itself, we know nothing more of it than we have read in the papers, the plaintiff being in no way connected with any member of our firm, as many have supposed. In reference to the point raised by the Vice-Warden, some remarks will be found in the City Article.

"A. B."—A great many enquiries are springing up for mining shares, and we have found it quite impossible to execute several orders at all, when limited to late quotations. The demand has shown that very little stock is held on the market, and that a general rise must take place in good shares.

"A SHAREHOLDER."—Great Retailack: These shares have been a little enquired for. There is no doubt the lead lode discovered in the new ground is equal to anything of the kind in the Chiverton district, and only wants a small outlay to make it profitable. In the meantime, we understand the committee have come to the determination to enforce the arrears of calls at once, and no individual shareholder can complain of being sued for the debts of the company when he refuses to pay his proportion in the shape of calls.

"H. C."—The agent hopes to get the engine to work by the end of July, by which time the wheel will be ready for drawing stuff. The lode now so rich in the 45 was first discovered in the 30, some months ago, when some splendid stone of ore, said by all who saw them to be the top of a bunch of ore, were sent to London. At that time, it will be remembered, we stated in this Circular that the committee had determined not to spend time or money in driving levels at the 30, but to devote all the force at the mine to sinking the shaft to the 45. We estimated in our article at the time what the cost of it would be, and told intending purchasers if the lode were cut as good in the 45 as it was seen in the 30 they would make a deal of money, and if cut poor they could calculate their loss; and upon these remarks many hundreds of shares were purchased. It took several months to sink the shaft, and when down to the 45 the lode was cut far richer than in the 30, and it has been driven upon 9 fms. yielding 5000 ft. of ore, the end and bottom being still the richest part. It will be seen, therefore, the present is not a discovery in the 45, but was first made in the 30, and 9 tons of ore were raised in that level, though driving was discontinued in order to put all force to the shaft. As soon, therefore, as the mines now in course of sinking below the 30 is driven to the 45 there will be 15 fathoms of backs to take away.

REDMOOR.—There is a branch of lead here, about 15 in. wide, and a leader of silver, about 4 in. Assays made from picked specimens have produced as high as 420 ozs. of silver per ton; the agent promises to have 1 ton of the average quality ready by Wednesday next, and a fair sample of it sent to London for assay. What the discovery may turn out no one can tell at present.

NEW INVENTIONS.

PROVISIONAL PROTECTION for six months has been granted for the following:—
T. SCOTT, Liverpool.—Improvements in sinking tubes, cylinders, or caissons for the foundations of piers, lighthouses, quay walls, and similar structures, and for the sinking of mine shafts and wells. April 7.

LETTERS PATENT have been issued for the following:—
C. J. CRAWFORD, Toulon, France.—Manufacturing iron and steel, and the alloyage of metals, together with preparing ores for the same. Feb. 23.
G. HASTINGS, 8, Southampton-buildings.—Improvements in the manufacture of sheet-iron. April 20.

SPECIFICATIONS published during the week:—
Furnace-bars and fire-grates, 10d.; cutting, punching, and bending sheet-metal, 10d.; preparing and applying amalgams, 10d. L. DE FONTAINE-MORAC.

CORNISH PUMPING ENGINES.—The number of pumping-engines reported for April is 26. They have consumed 2351 tons of coal, and lifted 18.2 million tons of water 10 fms. high. The average duty of the whole is, therefore, 52,100,000 lbs. lifted 1 ft. high, by the consumption of 112 lbs. of coal. The following engines have exceeded the average duty:—

Chiverton—Cookney's 60 in.	Millions	53.0
Cargill Mines—Micheil's 72 in.		54.7
Crane—70 in.		69.2
Great Wheal Bury—Harvey's 58 in.		67.8
Great Wheal—Lead's 60 in.		67.0
South Wheal Frances—Marriott's 75 in.		57.8
West Caradon—Elliot's 50 in.		56.0
West Wheal Seton—Harvey's 55 in.		61.1
Wheal Curtis—70 in.		53.0
Wheal Margery—Wesley's 45 in.		52.2
Wheal Tilly's 70 in.		71.1

IRON IN AMERICA.—The United States' Revenue Commission have laid before the Secretary of the Treasury a report in regard to iron and steel, comparing the resources of this country with those of Europe, Asia, and America. We learn that in 1830 the United States became the largest consumers, and continue so to this time. Our national advantages for the production of iron and steel are not surpassed in the world, and we have learnt to avail ourselves of them. We shall soon become the largest producers, although it must be long before it can be to our interest to send iron from our shores. England now employs iron to the extent of 160 lbs. per head of population, and exports more than she consumes. We manufacture 1,500,000 tons, and import about 300,000 additional. Our consumption does not exceed 100 lbs. per head. The Commission report that in the manufacture of steel our country has nearly emancipated itself from its dependence upon American cast-iron. Cast steel has been tried throughout all the manufacturing States by the most skillful manipulators of fine cutlery, tools, and in both heavy and delicate machinery, and the evidence of its excellent quality is beyond dispute. —*New York Herald.*

THE COAL FIELDS OF ENGLAND AND AMERICA.—A correspondent of the *New York Evening Post* writes as follows concerning Mr. Gladstone's comparison of the coal fields of England and those of this country, made in his recent speech in the British House of Commons:—"The last steamer from Europe brings us the speech of Mr. Gladstone in the House of Commons on the 3d inst., when, as Chancellor of the Exchequer, he made his annual statement of the financial condition of Great Britain. Among other subjects he spoke of the ability of England to continue the supply of coal at the rate it has been furnished the last ten years, and then instituted a comparison between the coal-producing capacity of England and the United States. This is a topic which has of late often engaged the attention of scientific men and statesmen, but they have generally handled it with more ability than Mr. Gladstone has—at least they have taken the trouble to get their facts all right before they drew conclusions. Mr. Gladstone says 'there is another country, not only as rich in mineral wealth as ourselves, but with a coal surface thirty-seven times greater than the coal surface of this country.' I allude to the United States of America, and though most of the coal there contains so large an amount of anthracite that it is not fit for steam or for smelting purposes, yet to domestic purposes it is capable of being adapted.' Is it possible that Mr. Gladstone can have been correctly reported? Does he not know that our navy uses anthracite coal, and that our steamers can make longer trips without coaling than those of England? Does he not know that our steamers emit no smoke, because they burn anthracite coal, and but for this blockade-running would have been ten times more successful than it was during the late war? Could England have furnished to the rebels anthracite coal to make steam for the steamers she built for them the war would, perhaps, have been much prolonged. If Mr. Gladstone will visit New England he will find that nearly every spindle of her factories is driven by steam generated by anthracite coal, and when he rides on railroads located within 200 or 300 miles of the anthracite coal fields, he will be drawn by a locomotive fed by anthracite coal. So much for 'steam purposes.' Now, in regard to smelting? Did Mr. Gladstone never hear of 'anthracite iron'? If not, the ironmasters of England can tell him that it can be produced in the United States; that the quality of the metal as 'pig,' or after being melted, is superior to English iron; that when made into rails it lasts longer, and is in the end much cheaper. When he consulted the work of Mr. Jevons, whose statistics he says, his 'honourable friend the member for Westminster had quoted,' he would not have made such a blunder, for the question of the ability of England to continue to be the ironmaster of the world is a very different one from that which Mr. Gladstone has in error. He says—'Most of the coal there (in the United States) contains so large an amount of anthracite, &c. It would be well for the future of America were this the case. Thus far, the only anthracite coal discovered in the United States is in Pennsylvania, and the entire quantity is comprised within 300,000 acres, or 47 square miles, while the total area of the coal beds of the United States is 146,859 square miles, so that one acre out of every 3124 acres contains anthracite coal. If Mr. Gladstone, before he makes up his next budget, will study the subject he will be able to make a much more interesting statement."

Notices to Correspondents.

VAL OF TOWY.—Will anyone interested oblige by communicating some particulars as to the actual position of this company?—A SHAREHOLDER.

TOLVADEN MINE.—I shall be glad if any correspondent would give me some information concerning this mine—what they are doing with the new ground, and how the new engine is working, as there has been a total absence of any definite news since the last call.—A SHAREHOLDER.

"Inquirer" is requested to communicate with Mr. Geo. Henwood, Tritonville Avenue, Sandymount, Dublin, who will give the information required.

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, JUNE 9, 1866.

The Board of Trade returns, for the four months ending April 30, continuing to show the extraordinary increase of business which is now being carried on in our exports, compared with the corresponding period of last year. The total for the period mentioned is 62,357,579*l.*; whereas in 1865 the aggregate was only 47,706,818*l.*; giving, consequently, an excess of 14,650,761*l.*, which is equal to a total value for the twelve months of no less than 187,072,737*l.*, and an excess of 43,952,283*l.*

In only three items connected with mining is there a decrease in comparison with last year, amounting collectively to 844,408*l.*, which, being deducted from the total increase in the other heads, gives a balance excess of 1,153,306*l.*, or equal to 3,459,918*l.* for the year. The total declared value for four months of 1866 is 10,837,039*l.*, against 9,673,733*l.* in 1865. The articles of decrease are machinery, to the extent of 434,416*l.*; copper, 388,286*l.*; and tin unwrought, 21,706*l.*. The increase consists of iron, to the extent of 1,136,399*l.*; tin-plates, 218,489*l.*; coals and culm, 214,219*l.*; hardware and cutlery, 165,958*l.*; steel, 151,821*l.*; lead, 91,421*l.*; zinc, 18,259*l.*; and brass, 6148*l.*

The dealings in the precious metals and bullion give the balance in favour of the imports. We sent away 4,882,213*l.*, and received 5,750,043*l.*, being an excess to the credit of this country of 867,830*l.*, the excess of exports over imports being 4,220,186*l.*, and the excess of imports over exports 5,088,016*l.*, the former being made up from three places—Egypt in transit to India, France, and Brazil, as given in the tabular statement in another column. The imports consisted of 3,145,749*l.* in gold, and 2,604,294*l.* in silver, while the exports were made up of 1,877,463*l.* in gold, and 3,004,750*l.* in silver, so that there was a benefit of 1,268,286*l.* in gold—a matter of material moment in the present state of reviving confidence in the money market.

SELECT COMMITTEE ON MINES.

The subjoined diagram shows the system of working referred to in the evidence given by Mr. DICKINSON, on May 29, reported in last week's *Journal*. Fig. 1.—System of getting Coal by Bays used in Manchester District.

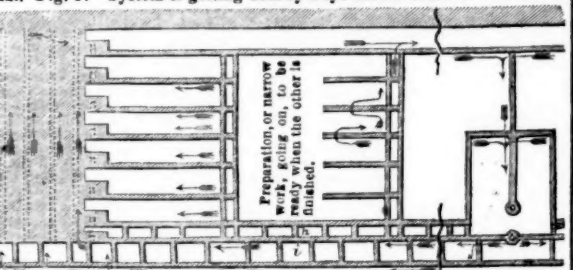
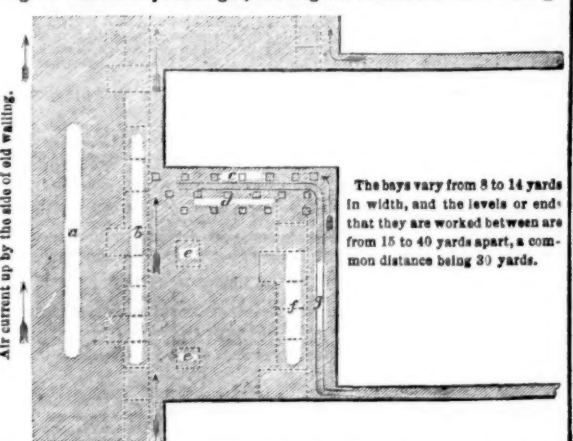


Fig. 2.—One of Bays Enlarged, showing the Chocks and Gob Walling.



In the original diagram, the following words are written in the spaces marked:—*a*, old workings, coal all got; *b*, old gob walling in the former bays; *c*, chocks; *d*, temporary props; *e*, *e*, wall; *f*, new gob walling; *g*, tramroad; *h*, wagon road; *i*, water level. The chocks are usually built of hard wood, 2 ft. long, by 6 in. square.

HOUSE OF COMMONS, JUNE 1-4.

Present: Mr. NEATE (in the chair), Mr. LIDDELL, Sir P. DE GREY EGERTON, Mr. KINNAIRD, Professor FAWCETT, Mr. W. O. FOSTER, Mr. GREENALL, Mr. WOODS, and Mr. HUSSEY VIVIAN.

Mr. RALPH MOORE said—I am an Inspector of Mines under the Act for the Eastern District of Scotland. I have filled that office four years. Before that I was a colliery manager and mining engineer, principally in the Glasgow district. I understand English modes of working, and the management of the men. In 1864 I sent a circular to the employers as to the ages of their boys, and I found from their returns that there were but few between the ages of 10 and 12—about 244, while the number of workmen is 21,150. The returns stated that they did not employ any until they were 12, or unless they could read and write. It is understood that there should be certificates. The boys under 14 are employed by the masters as trappers, which is not hard work, but boys under that age are mostly employed by the workmen themselves in drawing coals, which is hard work. Workmen are allowed to employ other children besides their own. On the whole, I do not think the boys too hard worked, but they are not fit to go to school after it; besides, there is the distance they would have to go; and, unlike boys in other trades, they would have to be washed all over, and change their clothes. If a boy has a certificate of being able to read he is not bound to attend school any more under the Act, and I scarcely see how a boy is to be educated at all if he cannot read before he is 10 years old. You could not interfere with the hours worked in the pit. I agree with Mr. DICKINSON as to the difficulties attending any plan of relays of boys. There are in some mines relays of workmen, but they are paid so much a ton for the work, which in Scotland we call "put-out" work. What we call "put-out men" are men who are employed otherwise than in hewing coals. The men being paid by the piece can work as many hours as they please, but the boys are paid by the day. It would be a great waste of time and money to shift the boys, besides the danger that would be incurred by their riding up and down the pit. I heard what Mr. DICKINSON said, and I agree with him that it would be a very great injustice to these honest people to prohibit women from working on the pit's bank.

By General DENNIS: There are about 860 boys between the ages of 12 and 14 in my district. Women are only employed at the pit's bank—never below.

By Mr. FOSTER: Relays of men in the colliery districts are an exception. The common practice is that there is no ascending and descending of men during the day's work.

By Mr. LIDDELL: The masters are generally opposed to employing boys under 12 at all, but they are employed through the workmen taking them in unknown to the masters. If the employment of boys were prohibited by law, there would be objection made to that on the part of the parents. I see statements made in the petition of miners that they desire such a thing, but it is not wanted generally by the colliers themselves. Any colliers that I have spoken to about it are indifferent. Boys employed as trappers earn 1*s.* a day, but when a collier takes his son with him, if he is a boy of 14, he puts out more than 1*s.* worth of coal. Thus, supposing a collier was making 4*s.* a day, he would claim with his son to make 6*s.* or 6*s.* 6d. The boy would not be able to earn so much as 2*s.* or 2*s.* 6d., but the man would be entitled to put out so much additional coal. This is not so much an arrangement between the workmen and the masters as between the workmen themselves. I do not know, but it may be a law of the Union. The fact of the boy being there, and, if he is being a certain age, enables the workman to put out an additional quantity of coal, and to make a higher wage for himself than he otherwise would do.

Mr. LIDDELL: We have a complaint on the part of the men as to the employment of children—that is to say, of boys under 12—and they want further legislation to stop

that; but now I understand from you that the employment of these boys is discouraged by the masters, but encouraged by the men?—That is the state of the case.

Mr. LIDDELL: And that there are trade restrictions—actual laws framed amongst the themselves by which the employment of boys is absolutely encouraged?—You are right in that. My opinion is that boys under 12 should not be allowed to go down the pit at all. When 12, I do not see that the men have any cause to say anything about it; but it rests entirely with the workmen, and not with the masters.

Mr. LIDDELL: But is there not something which it almost seems to require legislation to prohibit when we find these arbitrary restrictions being imposed by one set of workmen on another set of workmen?—I do not see how it can be prohibited. If the workmen agree to work only a certain quantity of coal they will do no more. In the Walsaw district, until six or eight months ago, the colliers used to put out 4 tons a day for a certain wage; but the men agreed to put out 3 tons only, and are doing so, for the same wage as they had for 4 tons. That has had the effect of raising the price of coal considerably—from 50 to 70 per cent.

Mr. GREENALL: I gather from your evidence that, with regard to the evils mentioned in the petition, and of which the men complain, the remedies are almost entirely in the hands of the miners themselves?—They are entirely in the hands of the miners themselves. It is entirely a workman's question, and not a master's question at all.

By the CHAIRMAN: I do not know that there is any Trades Union rule as to boys; it is an understanding. Suppose a man puts out 3 tons a day for 5*s.* A strong young man could easily do 4 tons; but he does not do it, because he would be making a greater wage than his neighbours, and would be complained of; but he says "I have a son of 12 or 14, who would be entitled to put out half a man's coal, and, although the boy cannot work, it will permit me to make 7*s.* 6d. a day, instead of 5*s.*" And if he has not a boy of his own, he will try to get a boy, and pay him 1*s.* a day, taking the balance himself. This rule applies to the principal colliers—to half the coal that comes out of my district.

By Mr. WOODS: Uniformity of amount of work is imposed upon workmen, and if a man were inclined to put out 4 tons, he must only put out 3 tons.

Mr. LIDDELL: Am I right in supposing that a boy of 10 is a quarter of a man, a boy of 12 half a man, 15 three-quarters, and 17 a whole man?—It used to be so considered.

Mr. ALEXANDER M'DONALD was recalled to explain this arrangement. He said that its origin was from the older periods of service. About the beginning of the present century, when apprentices were taken at Bonness and other collieries, it extended to Lanarkshire. They were then counted a quarter of a man from 10 to 12*½*, half a man from 13 to 15, three-quarters of a man from 15 to 17, when they obtained a full man's rights. There is an understanding, which continues yet between the employers and employed, that boys of these respective ages pay so much into a sick or accident fund. It is an understanding in a part of Ayrshire between the employer and employed that neutral boys should be paid at rates of wages corresponding with these quarters, halves, and three-quarters; and they are not allowed to get more coal, although the work is done by piecework.

Mr. WOODS: It seems strange that the owners of a colliery should be desirous of restricting the amount of coal that any workman, whether man or boy, should produce?—I can give no reason for it, further than that it is an old custom. It exists in Lanarkshire, as well as in Ayrshire.

By Mr. WOODS: Can you explain the uniformity of quantity spoken of by Mr. MOORE?—It is not the result of the Trades Union, but a custom which has arisen in Lanarkshire, Ayrshire, and Strathclyde. It had its origin in a line of defence, and the employers do not dispute it. The men are paid by piecework, and it was found that where a man was able to put out 4 tons a day or more, and in that way make 7*s.* a day, the employer reduced the rate, so that at last he would have to do the larger amount of work for the lower rate of wages, perhaps from 7*s.* to 4*s.*; but now, by putting out only the smaller quantity, he maintains the higher price. By this means a higher rate of wages is maintained for the whole community of colliers, without any loss to himself, as he gets the same amount of wages for less work.

The CHAIRMAN: So that if the skilled workman was allowed to do as much as he chose, and if there was no restriction, it would lead to a general depreciation of wages, from which the skilled workman would suffer as much as those who are not so skillful?—That is the opinion of the workmen, and they adopt this plan as a safeguard.

Mr. WOODS: Do you mean to say that this restriction of labour is an ancient custom in Scotland?—Yes; it is like the one with regard to the employment of boys. They are of the same birth. I cannot exactly fix the date; but there are some indications about the commencement of the present century, when the collier was made a free man, instead of a serf.

Mr. MOORE was then recalled, and examined as to ventilation: The first rule is a very good one. I do not know any sufficient reason why the words "under ordinary circumstances" should be objected to. I understand "ordinary circumstances" to mean the ventilation at all times; but if a fall took place in an air-course, by which the ventilation would be delayed for a day, that would not come under "ordinary circumstances." I have had no case wherein I have advised the penalties to be enforced for neglect of the first general rule. In my last report there is only one death from fire-damp, but we have a good deal of it in Lanarkshire. Black damp is very injurious to health, and in some of the mines the workings are not so well ventilated as they might be, but they keep within the first general rule. I have been called upon to visit mines on account of the prevalence of choke-damp, but never have been able to advise a prosecution. I agree with what Mr. DICKINSON said as to the duty of inspectors. It is, however, my practice to go down pits spontaneously, to see if the Act is properly carried out. I would not make the Inspector responsible for anything—that could not be done without making him the master in reality. All responsibility as to ventilation ought to rest upon the owners.

By Mr. GREENALL: My district is a pretty large one, but I am able to comply with my instructions as to the amount of inspection necessary. I have had complaints from workmen occasionally, and have gone down to see if a remedy was required; but I go down voluntarily.

By Mr. LIDDELL: I do not think that any special examination as to fitness is requisite for firemen. Their duty is quite mechanical. There is no difficulty in detecting fire-damp, and all that is required are steady, conscientious men. It is generally not from want of skill but from care that accidents happen. Their duties are defined in the special rules. I do not consider a system of examination would secure a better class of firemen than those now employed.

By Mr. WOODS: The present Mines Inspection Act has been most beneficial, and one cause of that is that it distributed the responsibility, by the general and special rules, over all persons employed in and connected with the mines. There might be further special rules which would better define the duties of the men.

By the CHAIRMAN: I wrote a small work on ventilation, for the use of the overmen. I concluded it by saying—"I am satisfied if due attention be paid to the suggestions above noted, and especially to sufficient area of air-courses, that mines in Scotland would be adequately ventilated, and explosions rendered almost impossible." My suggestions have been brought to the knowledge of the managers and owners, and have been followed with good results. I said—"No air-course should be less than 16 ft. area at any part," and that is generally complied with in all well-ventilated collieries. I should say by-and-by to get a rule introduced into the special rules that there shall be a minimum size of air-course, which would be a great benefit. I should put the minimum at 9 square feet for thin mines, and certainly not less than 16 ft. for mines of 4*½* ft. thickness. I find a general disposition to conform to my suggestions, but there are still some badly ventilated mines in my district. They are generally old pits, and great allowances must be made for them. Another of my suggestions is that the upcast shaft should be 20 ft. in area, but that would be no use unless the air-courses which came up to it are also large. The Act of 1862 requiring a double shaft is generally complied with, but not in all instances. I report such cases to the Lord Advocate. When a thing gets into the Lord Advocate's hands it gets out of mine, unless he calls on me to do something. If the Lord Advocate does not attend to such reports, it is no part of my duty to acquaint the Home Secretary with the facts. With regard to the second general rule, there is a difficulty as to when a place ceases to be a "working place."

The witness was then examined at considerable length by Mr. LIDDELL on the general principles of ventilation in mines.

By Mr. WOODS: If one colliery was double the depth of another, all other circumstances being equal, half the size of air-courses would do in the one case for what would do in the other.

Mr. WOODS: Then, in point of fact, any arbitrary rule as to the size of the air-courses ought not to be taken up without reference to the other circumstances of the colliery, and any arbitrary rule imposed by Act of Parliament would be unworkable, and I propose to put such a rule in an Act of Parliament, but in the special rules adopted for each colliery.

By the CHAIRMAN: I do not wish for any general law forbidding the use of the upcast shaft for ascending and descending—that should be left to the manager. I never felt any inconvenience myself. Going to and from their work underground is a serious addition to the labour of the men, and they always prefer the nearest shaft, whether upcast or downcast.

The CHAIRMAN examined the witness as to each case of accident mentioned in his last report. The great danger in his district was from falls of roof. It is not a subject, however, on which legislation is needed. The special rules can be altered at any time. Any suggestions that I might make now as to the special rules I could make to the owners themselves.

By Sir P. EGERTON: It does not follow that my suggestions would be attended to, but then I could arbitrate. I am doing so just now. I want a freeman to go through the Clackmannan Colliery before the men enter, to see there is no choke-damp, and that the working faces are safe, and the proprietor says there is no necessity for it. The result of my prevailing in the arbitration would be the introduction of a special rule requiring that. There is no rule just now binding the owner to have a freeman to go round the workings every morning, and I want to make one.

By Mr. LIDDELL: The owners object, I think, partly to avoid responsibility. The 1st special rule is that before going to work colliers shall satisfy themselves of the safety of the working places.

By Mr. GREENALL: The workmen did not suggest the alteration—it was made over right.

By Mr. WOODS: I have been deterred from going to arbitration by the mode in which the arbitrator is appointed. The owner of the mine to be arbitrated upon names five persons, and the Secretary of State must take one of the five. He delegates the choice to me. It would be better for the coal owner to appoint one, and the Home Secretary another, and they two to nominate an umpire. The five persons selected in the case now arbitrating were two mining engineers, a coal master, and two managers. I chose one of the mining engineers. I think the present law does not give the Inspector a fair chance, and should be altered. Perhaps I may here mention the special rules to which I object, and those which I suggest in their place. The special rules to which I object are these:—1. Before beginning to work, colliers should satisfy themselves concerning the safety of their working places. 2. If while at work, colliers discover or are informed of the existence of any obstruction in the ventilation, or stagnation, or impurity in the air of the colliery, or of the existence of any defect in the walls, roofs, or any other parts thereof, they shall be bound, without undue delay, to give information of the circumstance to the underground manager or to the principal roadman or other person in charge of the colliery for the time, so that these defects may be remedied, and danger therefrom averted. Colliers are expressly forbidden to go into or improperly near the place throughout the whole colliery where danger is known or suspected to exist. 3. I suggest, instead of these, these three special rules:—1. Colliers are expressly forbidden to proceed towards or into their working places at the commencement of any shift until it shall have been intimated to them by the freeman, or underground manager, or other person acting as such for the time, that the working places have been examined, and are apparently safe to be entered.—2. Till such intimation of the apparent safety of the working places shall have been made, colliers shall remain either at the pit-head, or at some other place assigned them for the purpose. If no such place shall have been assigned at which to remain, colliers shall always understand that the pit-head is the proper place at which they are required to await the requisite intimation.—3. Besides the intimation of apparent safety given by the freeman, colliers must satisfy themselves of the safety of their working places before commencing to work either at the beginning of a shift, or after any interruption of working during a shift, and shall obey the orders of the underground manager or overman placed over them in all matters relating to their work, and the ventilation and safety of the pit.

The CHAIRMAN: Your proposition is not substitutional but additional?—Yes.

The CHAIRMAN: Have you any other alterations to suggest?—No. The 8th general

rule, as to places of refuge, is pretty well attended to. Where there have been deviations from the law they have not been very flagrant.

Mr. FOSTER: We have had a statement made by Mr. McDONALD that he had just reported a case to you in which three boys, helping their father, were kept down a pit three days and three nights consecutively, and that one was under 10 years of age, did you visit that place?—I did, and I found the man, whose name is Lachlan Shelley, not McSchellin, as stated in our impression of May 19, but only two boys, Thomas and Patrick, both of whom were over the legal age; and that being so, I had nothing to do with it. I asked if there was a third boy, and Shelley said he had had a third boy down the pit, but that he had never worked, and had come there simply as company for his brothers.

The following sitting of the committee (June 4) was a very brief one—almost *pro forma* only. Mr. DICKINSON was recalled, and gave some explanations of his evidence, published in our last; and then Mr. McDONALD, at his own request, made a statement relating his former testimony as to Lachlan Shelley's three boys, and contradicting, on that point most positively, the evidence of Mr. Moore.

By Mr. FOSTER: I remember an accident in mining at the works of Mr. R. Stewart, when a young man was crushed and killed on an incline for want of proper places of refuge. There were some places on that incline where they were 25 yards apart. When I went down to examine into the cause of the accident, I may state, to show how little interest the workmen take, that having gone through the workings, and examined the two colliers who had been working the place, I said—"Now, have you anything to complain of, because of the purpose of hearing complaints?" The answers?—"No, we have none."—"Is there any place wrong, or have you any suggestions to make?" and again they replied in the negative. I asked whether they knew that they ought to have places of refuge, and they said they knew nothing about it. No system of inspection could provide for such cases unless the men communicated the absence of places of refuge.

Mr. GREENALL: A witness has stated that there are 1140 pits in Scotland, and only two inspectors, and that it would take them two years to visit every pit; now, might not the Inspector be absolved from blame only on the ground that he has not time to do the work?—An Inspector is not expected to go through all the pits every year, or at any time, but he is to attend to complaints made to him, and to make what examinations he can. To expect him to know the state of every colliery would make him responsible for every accident. If that were the case, the Inspector, in making out his report, would first have to protect or excuse himself, instead of making an impartial statement of the facts. The work which the Inspector Act contemplates being done is done; and we have fewer accidents in Scotland than in any other part of the kingdom. I often, however, inspect collieries without receiving any complaint about it, and I do not always give previous notice to the managers that I am coming. The complaints I receive from the men are not numerous—I had six complaints in 1865. They were principally as to ventilation in the non-ferrous collieries. I have had complaints with regard to the employment of children contrary to the Act—perhaps three or four during the last four years. If I found a boy employed illegally, either from being under age, or not able to read and write, and the master is ignorant, I inform him, and the boy is generally put out; if not, I inform the Lord Advocate, and proceedings are taken. This has happened three or four times in the last four years, and in one case a penalty of 10*l.* was inflicted. Boys are employed illegally, but no increased inspection would discover those cases; it is a matter for the men themselves. They should not take the boys down at too early an age, for the masters do not want them to do so. It is my candid opinion that the masters do all they can to prevent it. I do not think the Inspectors require the assistance of Sub-Inspectors.

By the CHAIRMAN: I have heard suggestions that managers of mines ought to have certificates of ability, like captains of ships, but the cases are not analogous. The captain goes away for months, but a manager is daily looked after both by the workmen and others. He requires to know how to manage men as well as to have scientific knowledge, and to be a person of tact, of great common sense, firmness, and kindness; and I do not see how any examination could go into qualifications of that kind. The power of granting, suspending, or recalling such a certificate would not induce a stricter observance of the Act of Parliament; that is better done by the facility with which the men can now get compensation by law if the rules are broken.

Mr. GREENALL: A witness has stated that you may know a boy belonging to the mine by his being enlisted and started in growth and in his joints, but I understand you to say to the contrary?—I have never seen such a case. A company of the Lochelly volunteers, composed of miners, were praised the other day for their smart appearance. By General DUNN: In my district the women employed are—in Lanarkshire, 46; in Strathgairn, 50; in Edinburghshire, 34; and in Fife, 162. The women are decently dressed, and there is nothing at all repulsive in their appearance when at work on the pit's bank; and it would be a hard thing if they were to be denied the privilege of working if they wish it. It would be particularly hard in Fife, where there are no factories near to give them other employment.

By the CHAIRMAN: I am not able to state anything about the truck system, except from hearsay, and have no evidence to offer on the subject.

The Committee then adjourned.

FOREIGN MINING AND METALLURGY.

The adverse influences of the moment have made themselves more strongly felt in the different coal mining groups of Belgium, and former prices have been no longer sustained. At Liège much regret is expressed that lines from Spa to the frontier, and from the Ourthe, are not yet completely established; if they had been in operation, it is believed that the Belgian collieries would have been able to profit to a considerable extent from the crisis which the working of the Saarbruck basins is at present sustaining, an extreme scarcity of labour having been experienced in the last-named district, so that the extraction has almost completely stopped. At Charleroi freights have displayed a decidedly downward tendency; a quotation of 8*s.* per ton for Paris has been accepted for recent deliveries, but as transports generally make default a fall is inevitable. The position of the Belgian iron trade becomes every week more embarrassed; most of the works are beginning to arrive at the close of their old orders, and it has, consequently, become necessary to procure fresh orders on any terms. The state of current affairs in Europe has already compelled some great industrialists to seek entirely new outlets. Attempts have been made to treat with New York direct, and a representative of a great Belgian house will be appointed, it is stated, to reside there permanently. Following the same order of ideas, the Montigny Company has accepted during the last few days a contract for Bombay, of which in ordinary times it would certainly not have thought. It is readily admitted, however, that these orders can never be otherwise than exceptional in presence of the competition of England, and that reliance cannot be placed on casual orders for the supply of cast works. The exportations of the Belgian forgers may, then, on the whole, be said to be growing more and more grave every day. It is still extremely difficult to prepare a price current for siderurgical products. The affairs to which allusion has been made have been concluded on the basis of 6*l.* 16*s.* per ton (rolled iron and rails); but in some transactions for the interior, which purchasers have been obliged to conclude, prices have varied sensibly. A lot of 2500 tons of rails will be offered for adjudication on the 21st inst., on account of the Netherlands State railways; this affair will indicate the real relative condition of the markets for rails in England and Belgium. The Ougrée Ironworks Company will hold its annual meeting, June 23, at Ougrée; the Courcelles-Nord Colliery Company will meet, June 30, at Brussels; and the St. Leonard Company, for the Fabrication of Iron and Steel, &c., will have its annual gathering at Liège, July 7.

The Bleyberg Mining Company has just held its annual meeting. The first part of the report was devoted to an examination of the position of the company from a technical point of view—that is, to a statement of the position of the several beds, the state of the works, the continuation of exploratory works, &c. From the information thus afforded, it appeared that if the expectations of the directors are realised, and if no unforeseen circumstances intervene, the future of the company is likely to be at least as good as its past. The extraction during 1865 amounted to 2141 tons of blende, and 4234 tons of galena and aluminous; the strength in zinc of the blende was 46.54 per cent., and that of the galena 80 per cent. of lead, plus 147 grammes of silver per ton. These totals were below those of 1864, and coupled with the advance in the price of combustible they produced a sensible diminution (813*l.*) in the profits. The profit derived from working properly, so called in 1865, was, however, 48,831*l.*, reduced by various redemptions, &c., to 40,243*l.* To this sum there might have been added 11,907*l.*, the profit derived from the realisation, at a premium of 25 per cent. of the company's shares, of the rate of 80*l.* each. This extraordinary profit was, however, applied specially to the new works at Ougrée. The previously indicated balance of profit, or 40,243*l.*, was divided as follows:—7 per cent. to the directors, 2 per cent. to the commissaries, 8 per cent. to the staff, 6 per cent. to the redemption fund, and the remaining 82 per cent. (or 33,000*l.*) to the shareholders. In conclusion, the report mentioned the truly remarkable fact that the shareholders have received during the last six years 150,231*l.*, a sum equivalent to the redemption of the share capital of 110,000*l.*, plus interest, at 6 per cent. Further, during the six years a sum of 49,670*l.* was applied, either to the reserve or to extraordinary works.

In the French iron trade business is pretty well sustained; if there are no important contracts there are tolerably numerous orders for re-assortments. Irons remain without change. Merchants' iron is quoted at 8*l.* 8*s.* to 8*l.* 16*s.* per ton, with a scale of 8*s.* and 4*s.* per class; sheets at 9*l.* 12*s.* and 9*l.* 16*s.* per ton, with a scale of 8*s.*, 12*s.*, and 16*s.* per class; special irons, 8*l.* 8*s.* to 8*l.* 16*s.*, with a scale of 8*s.* per class; machine No. 20, 9*l.* 8*s.* to 9*l.* 12*s.*; hammered iron, 10*l.* 4*s.*, 10*l.* 8*s.*, and 10*l.* 12*s.* per ton. Warrants have fallen of late. The production of coal by the Grand Combe Mining Company last year was 512,500 tons, against 506,500 tons in 1864, showing an augmentation of 6000 tons. The progress observable in the working expense was certainly remarkable, but it cannot be hoped that these expenses will continue to exhibit a progressive decline, as an establishment like that of Grand Combe, which desires to keep itself *au courant* with progress, and to be able to sustain competition, must necessarily provide for all works and all improvements rendered necessary by circumstances. We have already stated that the net disposable profit was 68,764*l.*, which would have admitted of a dividend of 2*l.* 16*s.* per share, carrying forward 1654*l.*. Fearing, however, that the exercise of 1866 may be a little less favourable than that of 1865, and in order to increase the floating capital, the council of administration, with commendable prudence, proposed a dividend only of 2*l.* 12*s.* per share. This dividend has been adopted and declared; it will be payable half in June and half on Dec. 31, 1866. MM. Abria and Cornélie de Witt, the retiring directors, have been re-elected. Mr. Gustave Lucé has been named a director in succession to his father, deceased. It appears that the production of coal by the Carmaux Mines Company in 1865 was 115,600 tons, showing an increase of 2600 tons only as compared with 1864. A grave accident which occurred in one of the pits reduced the extraction by at least 12,000 tons. The sale of the company's coal increased last year to 117,300 tons, as com-

pared with 119,000 tons in 1864, showing an augmentation of 4300 tons. The sale of the company's coke remained stationary—16,200 tons. The sale of agglomerates produced only 831*l.* last year.

There has been a slight revival in copper at Paris. English has made 86*l.* and rough Chilean 83*l.* per ton. A considerable relative animation has prevailed on the Havre market. Chilean has maintained itself in a favourable position, and has been the object of sustained transactions, at advancing prices; disposable has been dealt in at 83*l.* 10*s.* to 84*l.* 10*s.* and lots with future delivery at 83*l.* 14*s.* to 86*l.* per ton, according to the periods of delivery. On the German markets the state of affairs remains the same, the article being quoted generally at former rates. At Amsterdam, Drontheim has made 55*fl.*; English, 52*fl.*; and Swedish, 53*fl.*. At Rotterdam the quotations have been—Drontheim, 65*fl.*; North American, 65*fl.*; and English, 65*fl.*. Havre quotations have been—Chilean, 83*fl.*; Peruvian in bars, 86*l.* to 87*l.*; Peruvian mineral (pure standard), 85*l.* 10*s.* to 86*l.*; United States (Baltimore), 91*l.* to 92*l.*; Lake Superior, 100*l.* to 101*l.*; Mexican and Plata in bars, 74*l.* to 78*l.*; Russian, 91*l.* to 92*l.*; old yellow copper, 53*l.* to 55*l.*; red ditto, 79*l.* to 80*l.*; bronze, 72*l.* to 76*l.*. On the Dutch markets Banca tin remains quiet, and no important affair has been noted. On the various German markets the article has been quiet, and without change; the demand, for the most part, is subordinate to the requirements of daily consumption. At Rotterdam, Banca has made 45*fl.*; Billiton, 44*fl.* 10*s.* to 45*fl.*. At Amsterdam, soft lead has brought 12*fl.*, and Stoberg has realised the same terms. At Paris, Spanish saumons have brought 20*l.* 8*s.*, and French ditto 20*l.* 16*s.* per ton. At Havre, Spanish lead has made 20*l.* to 20*l.* 2*s.*, and lead from other sources 20*l.* per ton. The Hamburg zinc market seems to have revived from the torpor in which the Austro-Prussian difference had plunged it; the article closed rather heavily, however, at the last dates. The Berlin zinc market has been very quiet; a transaction is noted, however, in 2000 centners. Hopes are entertained of the re-establishment of regular traffic by railway, and a serious revival is anticipated in consequence. The Vieille-Montagne Company has just carried the price of its rolled zinc to 28*l.* per ton on the Belgian and Dutch markets. At Amsterdam the quotation for Silesian has been 13*fl.*. At Paris rough Silesian has brought 22*l.* 16*s.*, while at Havre zinc has realised 22*l.* 8*s.* per ton.

EXPORTS OF PIG AND Puddled IRON.—The value of the exports of pig and puddled iron from the United Kingdom has greatly increased of late years, as follows:—

Year	Value	Year	Value
1850	£248,074	1858	£1,081,170
1851	252,119	1859	1,091,227
1852	257,586	1860	974,065
1853	1,056,310	1861	1,044,304
1854	1,244,853	1862	1,303,641
1855	1,072,428	1863	1,287,968
1856	1,385,118	1864	1,412,352
1857	1,609,115	1865	1,591,063

For the first three months of this year the value of the pig and puddled iron exported was 298,452*l.*, as compared with 252,686*l.* in the corresponding period of 1865, and 256,639*l.* in 1864. The quantities of pig and puddled exported year by year since 1850 were as follows:—

Year	Quantity	Year	Quantity
1850	Tons 141,973	1858	263,143
1851	201,264	1859	316,376
1852	210,491	1860	342,556
1853	333,585	1861	388,004
1854	293,432	1862	444,708
1855	291,776	1863	466,423
1856	357,225	1864	465,381
1857	424,882	1865	513,018

For the first three months of this year the quantities reached 87,271 tons, as compared with 88,993 tons in the corresponding period of 1865, and 82,925 tons in that of 1864.

THE TIN TRADE.—Under date Rotterdam, May 31, Mr. L. Th. v. Houten writes—Throughout the present month tin has been unfavourably influenced by the monetary crisis and the political difficulties, yet these circumstances have not caused such a serious decline in prices as might have been expected. Banca, after advancing to 47*fl.* in the early part of the month, subsequently declined to 44*fl.*, but has since recovered to 45*fl.*, buyers in Billiton some sales were made at private terms. The position of Banca tin in Holland on May 31, according to the official returns of the Dutch Trading Company, were—

Month	1865	1864	1863	1862
Import in May	22,692	10,715	18,213	18,213
Total five months	106,833	94,512	84,722	84,722
Deliveries in May	22,739	3,890	6,443	6,443
Total five months	84,076	28,407	33,260	33,260
Total stock	213,386	212,416	179,966	179,966
Quotation, May 31 (new terms)	45 <i>fl.</i>	45 <i>fl.</i>	45 <i>fl.</i>	45 <i>fl.</i>

These returns, compared with those of 1865, exhibit—An increase of the import for May of 377 tons; an increase of the import for the five months of 388 tons; an increase of the deliveries for May of 594; an increase of the deliveries for the five months of 1754 tons; an increase of the stock second hand of 2710 tons; a decrease of the unrolled stock of 2679 tons; an increase of the total stock of 31 tons; and a decline in the quotation of 9*fl.*, equal to 16*s.* 5*d.* per ton. The Government returns for the month of March are as follows:—

Month	1865	1864	1863	1862
Germany	235	157	89	368
Belgium	57	19	16	88
England	16	19	24	62
France	91	93	19	197
Hamburg	29	15	—	81
United States	30	26	10	126
Other countries	27	8	10	37
Total	455	337	168	730

According to the official returns, the import of tin for consumption in France has been—

Month	1865	1864	1863	1862
England	162	265	—	389
Belgium	2	—	1	2
Holland	118	121	28	358
Other countries	113	160	125	163
Total	395	546	154	912

Under date June 4, Messrs. Von Dadelzen and North write—Tin has experienced a further fall of fully 5*fl.* per ton during the past month, under a continuous pressure to realise. The statistical position of the article does not improve, while every month brings us nearer to the autumn sale of Banca, the arrivals towards which have again been increasing. Stocks must be accumulated in the hands of English smelters, and they are evidently more inclined to compete with foreign holders. We have received about 2000 sales Straits from America, and there is little chance of any demand for export hence to that quarter; while, owing to the stagnation of the tin-plate trade, consumption of tin must have fallen off, and will do so more seriously during the next two months. On the other hand, we shall have no fresh arrivals from the East during the next two months, and prices are so low that they may probably attract the attention of speculators as soon as we have cheaper money and a greater inclination to operate generally, at any rate, as any further fall seems unlikely, the question is simply whether the probable rise will compensate for the loss of interest incurred in holding a heavy article like tin. We estimate the stock of tin in warehouse here at 3027 tons.

THE COPPER TRADE.—Messrs. Vivian and Younger, in their Price Current, say—The market has been very strong, and it was thought likely that smelters would have to raise their prices. Later, however, when the mail from Chili came to hand, bringing with it advices of eight vessels having been chartered for copper produce, and when the announcement was made of the failure of a house of very long standing in the metal trade, a certain adverse impression was created, sufficient to cause intending buyers to hold back, and sellers to appear more disposed to operate. It must, however, be observed that the above-named eight charters are for one month, and not for a fortnight as usual, the bombardment of Valparaiso having prevented the issue of usual commercial circulars by the previous mail. In reference to supplies of bar copper from Chili, Messrs. Robertson and Co., of Valparaiso, write—The high prices smelters are obliged to pay for coals, combined with the export duties, which must fall on the producers, and the very high rate of exchange, will tend to decrease the production for some time to come. At the same time, it must be remarked that the export of fine copper from Chili for the first three months of this year has been 13,000 tons, instead of 11,000 tons as estimated. The available stock of bars, ores, regulas, and English, in Liverpool, Swansea, London, and Havre on June 1 is thus estimated in fine copper:—

Month	1865	1864	1863	1862
June 1, 1865	Tons 18,538			
June 1, 1864	17,866			
June 1, 1863	11,450			

PURIFYING PARAFFIN.—An invention, which consists in purifying paraffin by means of fusel oil, whereby increased economy in the operation is obtained, has been provisionally specified by Mr. J. E. Poynter, of Glasgow. Crude paraffin, or paraffin in the state in which it was first obtained from among the products of the distillation of coal shale or other source, is always associated with various other hydrocarbons, which it is desirable to separate from it, and the object of this invention is to remove such hydrocarbon impurities. According to one modification, about equal weights of the crude or impure paraffin and of fusel oil (or hydrated oxide of amy, as the latter is termed by chemists) are mixed together, and sufficient heat is applied to liquefy the paraffin, and facilitate thorough intermixture. The heat should be as great as 180° Fahr., which is about the boiling point of paraffin, and it should not exceed 265° or 275° Fahr., which is about the boiling point of fusel oil, otherwise the oil will be wasted by evaporation. The mixed paraffin and fusel oil are allowed to cool, and the fusel oil is afterwards expressed or separated from the paraffin by means of an oil press, when it will be found that a large portion of the impurities of the crude or impure paraffin will have been removed by the fusel oil. The process is repeated with fresh fusel oil until no further impurities are removed thereby. If particular purity is required, or it is desired to free the paraffin from the smell of fusel oil, any traces of fusel oil remaining in the paraffin may be finally removed by applying heat of a sufficient temperature to completely volatilise and drive off the fusel oil, such temperature should not, however, exceed 300° Fahr., which will be sufficient for driving off the fusel oil. The heat for the purpose may be applied in various ways, as for example, by means of steam-jacketed vessels. It may be sufficient for ordinary purposes to wash the purified paraffin with hot water, in order to remove the smell of the fusel oil. By another modification, a quantity of fusel oil, sufficient without heat to

thoroughly dissolve the paraffin, is used. The paraffin is then allowed to crystallise, solidify, or deposit, which it does in a more or less purified condition. The free fusel oil being drained off, or the paraffin being fished out of the oil, any oil retained amongst the paraffin is expressed or separated by means of an oil press. This process may be repeated as before until sufficient purity is obtained, and in the final stage of purification the traces or smell of fusel oil may be driven off by volatilising it, or by washing with hot water, as before described. The fusel oil when charged with the impurities of the crude paraffin is itself purified or renovated, so that it may be used over again by distilling it in the ordinary way at the temperature necessary to volatilise it, and by collecting it as it distils over in a cold receiver.

REPORT FROM SCOTLAND.

GLASGOW, JUNE 6.—A sudden arrest has been put on the recuperative disposition of the iron market by the lock-out in the shipbuilding and marine engineering works on the Clyde, and which will affect materially trades remotely connected with them. During the past week the Pig-Iron Market has been very languid, and the low prices current have not imparted any great vitality to the demand. The whole mining trades seem in a "fix," and one evil after another gathers hastily around them. "After darkness cometh dawn," so we must patiently wait for the light. The Pig-Iron Market has been heavy all the week, and next to no business has been done in warrants. Local banking houses are very shy in accepting iron scrip securities from even good houses, on account of the dearthness of money, and the insecurity the late "rig" has engendered. This has the effect of bringing forward quantities of warrants, and if moneyed men could purchase and hold for a few months they would undoubtedly realise a good profit. The price has fluctuated little during the week, the difference of a few pence per ton including the widest range. For shipment the demand is getting slowly better, but the deliveries are nearly wholly from store. Up to yesterday the shipments of the week from the Scotch ports were 12,975 tons, as compared with 16,340 tons same week last year, which, with former deficiencies, makes the decrease on the year 65,528 tons. In Connal's store there is 460,282 tons, for which there are warrants in circulation to the extent of 447,010 tons. In the stores of the Canal Company there are 78,900 tons, and the warrants are for 64,833 tons. At Ardrossan the stock is only 6777 tons, and the warrants in circulation are for 2294 tons. The average prices for the first five months of the present and last year were:—

Month	1865	1864	1863	1862
January	60 <i>s.</i> 4 <i>d.</i>	71 <i>s.</i> 14 <i>d.</i>	77 <i>s.</i> 34 <i>d.</i>	78 <i>s.</i> 43 <i>d.</i>
February	59 <i>s.</i> 9 <i>d.</i>	50 <i>s.</i> 4 <i>d.</i>	50 <i>s.</i> 10 <i>d.</i>	53 <i>s.</i> 9 <i>d.</i>

and the number of furnaces in blast at date are 137 against 134 in the same month of 1865. To-day the market is dull, and prices declined to 50*s.* 6*d.*, but afterwards rallied, and at the close 51*s.* 3*d.* cash was paid, with buyers over, and not much iron offering.

The Malleable Iron Trade has been further and seriously depressed by the lock-out on the Clyde, which, added to the paucity of orders which have been booked for a long time, makes the trade perfectly lifeless. The low price of pigs gave hopes and buoyancy to producers of bar-iron, but the action of the shipbuilders has dashed the cup from their lips, and matters are now worse than they were a month ago, some 1800 workmen having been discharged within a few weeks. The Nithill Ironworks, which are capable of producing about 400 tons of finished iron a month, are offered for private sale; and at the great centre of production around Airdrie the dullness is unparalleled. The best makers are holding to their list price of 8*l.* a ton, but the others are offering their bars at 7*l.* 10*s.* to 7*l.* 12*s.* 6*d.*, and are booking only a limited number of orders. Some English houses, who had to withdraw their orders, owing to the high speculative prices which had to be paid during March and April, are beginning to reappear, and several enquiries, and one or two small orders have been booked at the reduction. As the prices are in favour of buyers, the reduced quotations are expected to attract good orders for the autumn, if political catastrophes do not interpose their paralysing influences.

Coals are firm, but quiet, and exports keep low. The diminution of consumption locally will have the effect of adding to stocks, which are very low, and are kept so by strikes and partial disarrangements. The colliers at Mr. Addie's pits, at Rosehall, continue on strike. They have 5*s.* maintenance money per week from the Union; and at a meeting, held in the vicinity, of delegates from several districts around it was resolved that every exertion should be made to increase the subscriptions to the Rosehall men. With an inactive demand, it is not likely Mr. Addie will readily yield, so that the strike may be prolonged for some time to come. From the Scotch ports the shipments for the week just ended were 19,890 tons, against 35,450 tons in the same week last year. The people here are getting sick of strikes.

The unfortunate lock-out on the Clyde of the engineers and shipbuilders is not, unhappily, progressing to a settlement. To the number of hands out last week is to be added 1200 of Napier's men and 300 from the Clutha foundry. There have been numerous meetings of the men, and resolutions were passed voting sums to assist those willing to emigrate. Others were recommended to try parts in England and Ireland for work, but no kind of compromise has emanated either from the employer or the employed of any consequence. An attempt to change the aspect of things has been made by the men, whereby they propose to accept of 57 hours' pay for 57 hours' work, on condition that the employers add 5 per cent. to their former wages; but 5 per cent. added to their weekly price is precisely the equivalent of three hours' labour. A private meeting of the employers was held yesterday afternoon, when the above proposition was discussed; and we have it on the best authority that they unanimously resolved to concede the reduction in the hours of labour craved, but negatived the request of the 5 per cent. advance, as the state of the contracts would not admit of their paying such an increase. Thus matters stand, and we believe the sooner the men go back on their old terms the better for themselves and those depending on them for sustenance, as the masters, we are informed, will not speedily reside from this proposition.

REPORT FROM NORTHERLAND AND DURHAM.

JUNE 7.—The Coal and Coke Trades here continue good on the whole, at any rate the prevailing feeling which appears to pervade commerce generally has not affected those trades much as yet. The commercial panic has certainly very generally extended itself, and exerted a most baneful influence; the various extensive manufacturers and others on the Tyne appear to be suffering from this panic to a most unnecessary extent, and they seem to be depressed to such a degree that workmen are being discharged, not so much from a want of orders as from the fear that orders will not be forthcoming in future. It cannot be said that there is a great dearth of orders as yet, but for the moment the panic has had the effect described. It is hoped, however, that this will not be of long continuance, although the state of affairs on the Continent must exercise considerable influence. A state of war would most certainly be better than the present state of suspense. As at any rate, the coal and iron trades are pretty certain to proceed much as usual. Actual war would, indeed, increase the demand for and raise the price of steam coal to a considerable extent.

A lecture was given by Mr. G. F. Ansell, of the Royal Mint, on Saturday, before the members of the Northern Institute of Mining Engineers and others in the lecture-room of the Literary and Philosophical Society, at which Mr. T. E. Forster presided. The object of the lecture was to explain the various inventions he (Mr. Ansell) has made for the purpose of detecting the presence of fire-damp in mines. Those inventions have been often described in the Journal, and they are of a very ingenious character, and also calculated ultimately to be of much use in mines. Mr. Ansell does not aim at superseding the use of the Davy Lamp for detecting explosive gas, but to provide a more subtle and precise Indicator thereof. The Davy Lamp has, during the last ten or dozen years, been considered the only guide for the practical man in detecting the presence of gas; previous to that time the critical examination of a candle was much relied on, but it must be recollected that by either or both these methods the presence of gas can be detected, but the amount can only be guessed at; and it is here that the great merit of Mr. Ansell's invention will be found, for it not only shows the presence of gas, but the exact amount per cent. This it indicates most accurately, and it must, therefore, prove of great advantage to the scientific and practical miner. But Mr. Ansell carries his invention even further than this, for he showed an instrument so contrived as to work an alarm when dangerous gases are in the neighbourhood, certainly a most ingenious application of his principles. Mr. Daglish enquired if time had to be considered in the use of the aneroid barometer, and Mr. Ansell replied that it should be held 45 seconds. The Chairman proposed a vote of thanks to the lecturer, which, having been seconded by Mr. Daglish, was carried. The instruments exhibited had been manufactured by Messrs. Marratt and Short, of King William-street, London. The opinion appears to be gaining ground here that the ingenious Chain Pump of Mr. Bastier has something about it worthy of notice. Its continued direct action, instead of reciprocating, is a great advantage, as well

as the general simplicity of the arrangements; it is a most remarkable and original invention, and it appears to be well worth a trial on a larger scale than it has yet been subjected to, and this is the only process by which its merits can be tested, and it seems probable that such a trial will shortly be made, as it has just been brought prominently before the North of England Institute of Mining Engineers, and a statement made that work which costs 25s. with the common pump is done for 12s. 8d. by Bastier's pump. Mr. Greener's paper upon it will be found in another column.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

JUNE 7.—There is no alteration worthy of note in the state of the Iron and Coal Trades of North Derbyshire. The enquiry for iron pipes, plates, and bars continues much the same as it has been for the last two or three months, and the business generally is in a very healthy state. The demand for coal is good, and a full average tonnage is being taken from the district by the Midland. One or two collieries which have been in course of construction are now nearly ready for drawing, so that the vast mineral wealth of the locality promises to be rapidly developed. One of the great drawbacks, however, not only in the neighbourhood alluded to, but in many others, is the want of house accommodation for the work-people. The trade in Sheffield is by no means so good as it has been, the present state of the Continent, and the uncertainty as to the course which will be taken by the United States Legislature with regard to the proposed rectification of the duties on iron goods, tends to cause a falling off in business. The only branch of the trade which keeps up is the heavy armour and other plate rolling. Should the war be speedily commenced, there can be no doubt but such makers as Brown and Co. (Limited) and Cammell and Co. will be well provided with orders. At Rotherham and Parkgate a fair business is being done; at the former place the stove-grate trade is tolerably active. At Milton and Elsecar there is little or no change, business being quiet, although there appears plenty of work for the puddlers now engaged, many having left during the last three or four months. At the extensive ironstone field on the Lincolnshire side of the Trent there is a large quantity of iron being turned out, and the Frodingham Company have put another of their furnaces into blast. The railway company are also taking a heavy tonnage of the ore into the various iron-making establishments in Leeds, South Yorkshire, and Derbyshire.

The demand for steam coal from the principal collieries in the South Yorkshire district continues good, and masters are kept well up in orders from nearly all parts of the country, whilst the export trade to the North of Europe from the ports of Hull and Grimsby is now more than an average, and bids fair to become very large indeed. The Silkstone collieries are in full work, a large proportion of the coal raised finding its way to the metropolitan and southern markets for household purposes, whilst the nuts are sent into Lancashire, and other parts of the kingdom, for gas-making purposes. All the small coal made in the district, and which a few years ago was not worth the trouble of raising, now finds ready markets at remunerative prices; indeed, the demand for slack and smudge so far exceeds the power of supply, that orders to almost any extent could be obtained from works in various places in Lancashire, and other parts of the country, for what was formerly looked upon as nearly waste, but which is now used for engine purposes and the making of coke. At the rapidly-increasing works of Messrs. Cammell and Co. (Limited), at Penistone, the greatest activity is displayed, the output of Bessemer steel cranks, steel rails, locomotive wheels, &c., being very large, whilst the works are largely extended on all sides.

Between 500 and 600 men have turned out on strike at the Rotherham, Holmes, and Masboro' Coal Company's Low Ground pit. Only a few months since an application was made by the employees for an advance of wages, on the ground that the requested increase would only place them on an equal footing with the remainder of the miners of the South Yorkshire district. Although the demands of the men were not fully acceded to, the masters did make some concessions, and, furthermore, in notifying their intended changes, the manager issued an elaborately worked-out statement showing the reasons of the offer. For some time past there has been disagreement among the men, owing to the refusal of some of them to join the South Yorkshire Miners' Association. Until now, however, there has been no regular organized coercive movement. As the whole of the turn-outs have left without giving proper notice, it is not improbable that some of them may be brought before the magistrates for unlawful neglect of work, should they persist in remaining out and retaining their present attitude. It is hoped that the men may go in again speedily; but if not, prompt measures are likely to be adopted in bringing to justice those who have thus violated their agreement.

The trade in the neighbourhood of Middlesbrough is by no means so good as it has been, owing in a great measure to the present state of the money market and general financial depression. Sellers are by no means solicitous in booking orders, but feel inclined to wait, in the hope of the passing away of the present state of uncertainty which characterises most of the important branches of the country. Although the home trade is quiet, there is rather more doing for exportation. One of the furnaces belonging to Messrs. Swan, Coates, and Co., at Cargo Fleet, is now in operation; their first tapping has been made, and the quantity and quality of the iron made, and now under full blast, has proved highly satisfactory. The fire has been lit for some time in their other furnace, and it is expected to be in operation in the course of next week. The iron market, on Wednesday, as might be expected, was very quiet, the prices being for warrants—Buyers, 45s. 9d.; sellers, 46s. 9d. cash; No. 1, 52s. 6d.; No. 3, 49s. 6d.; No. 4, 48s. 6d.

In most parts of Lancashire trade generally is good, there being plenty of work at this engine and machine establishments, as well as at the various locomotive works. This state of things, however, does not apply to Liverpool, whose business is not by any means brisk. The strike at the Mersey Steel and Ironworks continues, and seriously disarranges the ordinary progress of trade. The conduct of the men on strike has been such as to call for magisterial intervention. On Tuesday, Mr. Clay, the managing director of the works, applied for summonses against several men for intimidating those at present employed by the firm. In making this application, Mr. Clay stated that they had been compelled to obtain a large number of workmen from Staffordshire to take the places of those men who had recently left. These men, and others connected with them, were in the habit of assembling near to the works, and by threats and other means of intimidation sought to prevent them from going to work. The magistrate at once granted summonses against the men complained of.

THE DEVONSHIRE SILKSTONE COAL COMPANY (Limited).—On Saturday about 30 of the shareholders in this company assembled at the scene of operations, Sheepbridge, near Chesterfield, for the purpose of inspecting the works, and for friendly intercourse. Several gentlemen descended the shaft, and inspected the workings below, while others devoted their attention to an examination of the engines, buildings, and offices above ground. The company leased the royalty, extending over 800 acres of land, in January, 1864. The first sod was cut in the May following. The shafts sunk are two in number—the one for the pumping-engine being 13 ft. 2 in. in diameter, and the other, for the drawing of the coal, 12 ft. The first was walled and finished in November, 1865, and the latter in May of the present year. Coal was won at a depth of 163 yards, which was somewhat under the surveyor's estimate. The seam of coal which the company are about to work is locally termed the "Silkstone," or "Black Shale," and is identical with the Arley Mine of Lancashire, and the Low Moor "Better Bed" of Yorkshire. It is satisfactory to learn that the works have progressed to their present condition without loss of life or limb, indeed, without noticeable accident of any kind. The allotted capital of the company amounts to 30,000l. The coal has been won, and the works constructed to their present advanced condition for less than 14,000l. The shares are, consequently, at from 2l. to 3l. premium. The inspection appeared to give the fullest satisfaction to all the gentlemen present. Specimens of the coal were examined, and pronounced by experienced miners to be of excellent quality, and to be especially well adapted to the making of gas and coke. The company proposes immediately to erect ovens for the manufacture of the latter article, and anticipates a good sale for it, especially in Sheffield and other neighbouring places. The coal is likewise considered to be admirably adapted to the metropolitan requirements for household purposes. The thickness of the seam, which exhibits three distinct qualities of coal, is 57 inches. In the evening, upwards of 20 gentlemen dined together, at the Shakspeare Inn, Buxton, the Chairman of the company, Mr. Lord, of Bury, presiding. Several speeches were delivered, of a congratulatory character, and some interesting observations made by several speakers, respecting the probable duration of our coal fields, and the future destinies of Britain, in the event of the American and other nations successfully competing with it in the public markets of the world in the manufacture of iron and other articles of commerce, into which the consumption of coal largely entered.

WHAT CONSTITUTES A COAL MINE?

A case of considerable importance to the owners of coal and ironstone mines has been heard at Chesterfield, an information having been laid by Mr. Evans, the Government Inspector of Mines for the district, against Mr. W. Fowler (Sheepbridge Colliery Company), one of the proprietors of some ironstone mines in the parish of Whittington, for not having special rules for the management of those mines under the provisions of the Mines Inspection Act. It was contended for the prosecution that the ironstone pit in question was a pit which came under the Mines Regulation Act of 1860, which raised several important points of law. The principal were—What constitutes a coal mine according to the meaning of the Act?

Is it necessary that the coal should be of a workable thickness? Upon section 7 of the Act another question was raised, as to what constituted a connection—a mere trace of coal, or a seam of workable thickness? Another point raised was—Did an old coal shaft, filled up and re-opened to be worked as an iron mine, come under the meaning of the Act?

The case for the prosecution was ably argued by Mr. Busby, the defence being conducted by Mr. Vernon Blackburn (instructed by Messrs. Smith and Burdakin, of Sheffield). Mr. Busby explained that in the Coal Mines Inspection Act it was stated that the provisions of the Act for the Regulation of Coal Mines should extend to all mines of ironstones "worked in connection with coal or with disused or exhausted coal mines, and all the works belonging thereto." The former enactment was confined to coal mines only, but by the Act just mentioned the scope of the law was extended to ironstone mines of the coal measures which were worked in connection with disused or exhausted coal mines, and the "connection" which it was necessary to provide would be a material and physical connection between the mine above and the coal pit below. If there were such a connection between the iron above and the coal below that water went down and gas came it brought the mines within the purview of the Act, and obliged the proprietors of them to place them under Government inspection, and provide special rules for their management. Forty years ago the black shale coal which lies below the ironstone mine was excavated. Levels were driven by which the water was drained off and shafts were sunk from the surface, by which the coal was got. Above the coal, at a distance varying from a few feet to several yards, lie the ironstone measures, which were not got when the coal was obtained, and remained until a very recent period untouched. Recently the old coal shafts which had been filled up were emptied of the debris with which they had been filled, and the ironstone was got by means of these shafts, or, in point of fact, by disused coal shafts. Nor was that all, as it appears that lying near the ironstone is a seam of thin coal called "amut," about 5 in. in thickness, which was used for the pit cabin fire, and which, though it was not pretended was a coal of any great merchantable value, was still a useable coal. This coal was got at the same time as the ironstone, and, as the Act did not draw any distinction between seams of coal of different thickness, it was, he contended, another point bringing the mine within the meaning of the Act. Further, the subsidence of the roofs of the exhausted coal measures had caused a subsidence of the floor of the ironstone measures above, resulting in numerous cracks through which the black damp rises, to the detriment of the men working in the ironstone seams above.

The first witness examined was John Cutts, an ironstone miner in defendant's employ, who gave his evidence in a very unwilling and unsatisfactory manner. He went round the pit on March 9 with Mr. Joseph Dickinson. The witness fenced with and equivocated upon almost every question put, but it was elicited that he had heard of the seam of black shale coal beneath the ironstone. He had not got any coal, the man was gone who did that job. There were bills and holes in the floor, but he did not know about cracks. He saw Mr. Dickinson put his candle against one place to see if any damp came out, but he did not think there was gas, as it did not blow the candle out. Mr. Dickinson tried many places.—Mr. Busby: What, breaks?—Witness: He tried where he'd a mind to. He admitted that there was a man who found a crack, and put a basketful of soil in it. He knew that cracks did sometimes occur. He knew a seam of coal called amut, upon which the ironstone measures rest; they get to that coal first, and burn it at the pit top in the cabin-fires.—Mr. Joseph Dickinson, the Government Inspector for Manchester district, was next examined, and stated that on March 9 he examined the pit in question. Upon going to John Cutts' pit, Mr. Wild, the manager, said that was one of the old coal shafts by which the old coal seams had been worked. Mr. Willoughby Ward, deputy-manager, went with him into the out-drop, and they observed that the ground was shaken, and had already subsided a few inches. They then saw that the ground was so broken that he could put his arm into the crevices. Cutts was present. The black-damp came up so strong as nearly to extinguish the candles. They then looked at another broken place between that and the shaft, and Mr. Wild said it was a fair sample of the way in which the ground was broken by the old coal workings below; he also said he was advised the pit did not come under the Act. He (Mr. Dickinson) told him there was coal being worked with the ironstone, which he had measured, and found to be 5 in. thick, and Mr. Wild said it was not merchantable. It was being burned in the cabin fires. The coal was only poor, but he had seen worse burnt for house purposes in Cumberland. He had no doubt the gas came up from the old workings, and the cracks which let it up would let water down. In cross-examination, Mr. Dickinson stated that he was certain that the cracks he had spoken of extended across the ironstone measures. They were breaks caused by the subsidence of the strata. The amut coal might average 3 in. in thickness. Saw that it was worked out and removed. Did not observe that it was taken away with the dirt, but it might be. The amut was a coal to all intents and purposes. It had the crystal and faces of coal. Its value was not destroyed by holding it in.

On behalf of the defendant, Mr. Blackburn contended that there was no proof whatever that any coal had been got below this ironstone, or that there was any disused pit there. The statement of the manager to the contrary did not bind the defendant, his master. Mr. Wild might have been mistaken. But granting, for the purpose of argument, that there was an old pit, he submitted that under the 7th section of the Act there had been no case made out, and that the case did not come within the meaning of the Act. The preamble of the Act said its scope should extend to certain mines of ironstone (not to all), not "in connection with the disused coal pits," &c., but—which appeared to have escaped his friends' attention—worked in connection with these pits. He urged that the water was no proof whatever of connection, as water would percolate any distance, and the only question that the gas could affect was that of safety, and on that point he could prove that these mines had been most safely worked. He denied that the amut was worked for itself, and contending that it was simply got with the ironstone, and thrown away as rubbish, he submitted he had no case to answer.—The Bench, however, being of a different opinion.

Mr. John Hedley, formerly Government Inspector for the district, was called. He stated that Mr. Fowler consulted him on this very question after the Act passed. He advised Mr. Fowler to discontinue the winding of the coal and ironstone together. He did not consider the mine came within the Act. He had been of that opinion some time. He had seen the mine and observed the work. They hole in the amut coal and threw it among the rubbish. In his opinion the fact of gas coming up and water going down does not constitute a working connection. In cross-examination the witness stated that his attention had been drawn to these pits in 1860 by an accident, and admitted that he returned the accident as having occurred in ironstone pits worked in connection with coal mines. He certainly saw coal coming out of these mines at that time. Saw it on the pit bank, and the bankman said it had come out of the pit. He saw Mr. Fowler, and told him he would have to have special rules, but did not cause them to be provided, as Mr. Fowler declined to either Fowler's or Appleby's case. The witness admitted reporting the mines as coming under the Act, although he did not enforce its provisions; and in answer to further questions, said that since he had so reported he had ceased to become an Inspector, and had taken a position which identified himself with the proprietors of mines. He stated, in answer to Mr. Busby, that he was consulting engineer to several firms, and had during the last few years been constantly consulted by Messrs. Fowler.—Mr. Fowler was called, but his evidence was excluded, the case being a penal one.

The arguments having been concluded, the Bench decided that the case had been proved, and inflicted a penalty of 1l. and costs, and in the second charge a penalty of 1s. and costs.

REPORT FROM MONMOUTH AND SOUTH WALES.

JUNE 7.—The tone of the Iron Trade of South Wales remains about the same as last reported, and unless orders come in more freely than they have during the past two or three weeks operations at several of the works will be interfered with. It is only owing to the fact that Welsh makers some time since were fortunate enough to secure several good foreign contracts that the mills and furnaces have been enabled to be kept going so fairly during the present period of stagnation. The opinion is pretty generally entertained that towards the close of the quarter there will be a slight reaction for the better, in consequence of money becoming cheaper, which will induce buyers to enter the market with, at least, those contracts which require immediate attention. It is tolerably certain that anything like a material reduction in prices will not be conceded by makers, who, even at the prevailing rates, find it somewhat difficult to make specifications pay, with the cost of the raw material and the price of labour so high. Should the approaching quarter see a moderate amount of activity set in, there is not the slightest doubt but that the old list prices will again rule the trade. In the home market but few transactions have taken place, and in the foreign trade, taking it as a whole, there is no improvement to record. In some few cases business continues steady, as, for instance, with British North America, Russia, and the Baltic markets; whilst the advices received from New York are more satisfactory. There are some contracts under execution for India, but no change for the better has taken place in the enquiries from the East. Transactions with the markets of Southern Europe are completely at a standstill. In pig-iron, trade is very flat, and a less quantity of the make of this district is forwarded to Staffordshire. Quotations remain without alteration. The Tin-Plate Trade is also extremely quiet, but the last American advices point to a somewhat better demand from that country, the continuance of which depends, in a great measure, on the effect the failures in this country will have at New York. Steam Coal proprietors are busy, and the foreign demand is on the increase. These remarks are also applicable to the inland trade. The prices for steam have an upward tendency. There is but a moderate demand for house coal, and no change has taken place in quotations. The men employed in the Rhondda and Aberdare Valleys have not proceeded further with the agitation for increased wages since the Rhondda meeting, and there are hopes that they will allow this demand to drop, as the proprietors have made up their minds not to comply with them.

With reference to the emigration of miners to America, and the scarcity of hands in the Welsh coal mines, where wages are much higher than in Cornwall, Mr. Warrington W. Smyth writes as follows to the proprietor of a steam coal mine in the Aberdare Valley, Cardiff—

"It is a matter of surprise to me that you should meet with any difficulty in obtaining plenty of men, when I see what high wages can be made in your pits. Why, it pays a young man better to cut coal with you than to be an officer in the army or navy, or to be a curate in a church; and, as you give your workmen plenty of wind, with what your furnaces and your great ventilating-machine, there is nothing to complain of with respect to unhealthiness of occupation. There are thousands of good fellows in our tin and copper mines who work hard, and often in very poor air, who would be glad enough if they could make but half of the amount which an industrious man is able to ensure himself in some of your steam coal collieries."

It is with regret we have to announce the suspension of the Dynevor Coal Company, Glamorganshire. The company's collieries are situated in the neighbourhood of Neath, and they employ a large number of hands. Fortunately for the neighbourhood, the works will not be stopped, as it is intended to carry them on under inspection. The liabilities of the company are reported to be

something considerable, but as the shareholders are well known to be wealthy, it is believed that the whole of the creditors will eventually be paid in full. Mr. J. H. Rowlands and Mr. S. Gardner will be appointed inspectors on behalf of the creditors.

The announcement is also made of the suspension of Mr. Wright, of the Cadoceter Colliery. The liabilities are not large.

In last week's Journal appeared the particulars of an explosion at the Cwmillery Colliery, the property of the South Wales Colliery Company, by which John Bagnall lost his life. Since then his son, who was injured at the same time, has died. It was stated that a door in the heading had been left open by a haulier named Williams; although that was the opinion of many, it appears that there was no positive proof such was the case. The adjourned inquest on the body of the elder Bagnall was held last Tuesday, at which Mr. Lionel Brough, the Government Inspector of Mines, was present. After several witnesses had given their evidence, Mr. L. Brough said the general opinion was that the main door (made of canvas) of the main heading had been left open. He insisted that there ought to be two doors of wood in the place of one made of canvas. He was unable to arrive at any proof that the door had been actually left open, but either from that cause or from a leakage above, under, or around the sides of the canvas door, the air was partially cut off from the stalls, which became filled up with gas to the top of them, and the younger Bagnall going up to the working place with a naked light, flamed the gas and caused the explosion. After a long deliberation, the jury returned the following verdict:—"That John Bagnall died from the effects of burns from an explosion of gas at the Cwmillery Pits, the said explosion being caused by the gross neglect of some person or persons leaving an air-door open; therefore, we return a verdict of manslaughter against some person or persons unknown."

A collier, named William Gamblett, aged 53, was killed on Saturday by a fall of coal at Abercarn Colliery, the property of the Ebbw Vale Company (Limited). The deceased was found in a stooping posture, with his head jammed between the fall of coal and some timber. On the debris being removed it was discovered that life was extinct. There was a cut on the temple, and one of the legs and arms were broken. An inquest was held on the body on Monday, by Mr. W. H. Bremer, when the jury returned a verdict of "Accidental Death."—On the same day a couple of falls at the top of stalls took place, by which two colliers, named George Garland and Daniel Davies, were seriously injured.

The contract for supplying the London and North-Western Railway Company with railway axles for the ensuing twelve months has been given to Messrs. Winby Brothers, of the Atlas Iron and Steel Works, Cardiff.

The arrivals at Swansea include—The Clementine, from Cherbourg, with 56 tons of iron ore, for T. Walters. The Phillippe Weyerengange, from Palermo, with 280 tons of brimstone, to order. The Robert Nicol, from Bilbao, with 231 tons of iron ore, for W. H. Tucker. The Victore, from Camillias, with 140 tons of zinc ore, to order. The Governor, from Calera, with 490 tons of silver ore, for H. Bath and Sons. The Demosthenes, from Agra, with 360 tons of zinc ore, to order. The Fairy, from Cagliari, with 598 tons of lead ore, for H. Bath and Sons.

THE COALBROOKDALE COMPANY.—It is stated that certain changes of considerable importance have been made in the superintendence of the extensive works of the Coalbrookdale Company. At the Horsehayes, the superintendence of the furnaces only have been placed under the supervision of Mr. N. Wilkes; Mr. G. Norris takes the general superintendence there. The Tower Forge, the Lightroom Brickworks, the farm, and the mines at Broseley, are assigned to the supervision of Mr. J. Fox; while Mr. C. Crookes takes the management of the foundry at Coalbrookdale.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

JUNE 7.—The Iron Trade in both districts of this county is very flat. Very few orders are received, and at few of the works is there much more than half the usual amount of iron being produced. Pig-iron has generally been sold for a month in advance of the present time, so that there has not been any necessity to press sales, but a disposition is manifested to yield in price if the purchasers could be found. At the present time, however, transactions are few, if any. By the end of the month, when the Preliminary Meeting will be held, it is possible that a clearer estimate may be formed of the prospects of the trade. The failure of the Agra and Masterman's Bank, it is to be feared, will have a very prejudicial effect on the trade, as India is a most important market, and it is certain that such a collapse must for some time interrupt commercial transactions with that country. The failure of Messrs. Woodhall and Warrington, ironmasters, of Dudley, is reported, with liabilities amounting to 15,000l., and another small failure is also announced.

The Hardware Trades are quiet, but as yet the manufacturers are, on the whole, fairly employed, and these trades appear sound, no bad debts being advised, so far as stated. Probably the failure of the bank noticed above will affect the trade with the East Indies for some time, until other means of transmitting money can be found, and its creditors shall recover possession of their balances.

The question of liability of the manager or his deputy, or the charter-master or his deputy, to enforce proper provision for preventing falls in mining operations, again came before Mr. Isaac Spooner, stipendiary magistrate, on Monday, at Sedgley. It may be remembered that Mr. Spooner decided in a case recently that the responsibility under the special rule as to propping the roof, &c., was met, so far as the chartermaster was concerned, by his providing timber, and did not extend to enforcing its use. Mr. Baker, the Inspector of Mines, not accepting this decision, brought forward a case a second time at Sedgley last Monday, in which the defendant was James Stevenson, who had charge of the working of the Tile House Colliery, Kingswinford, where two persons were killed on Feb. 17. Previous enquiries showed that the defendant went down the pit, and directed that a tree should be put up to support the roof, and went away without seeing it done. Very soon afterwards the roof fell at the very spot where he had ordered the tree to be fixed, and two persons were killed. It was contended for the prosecution that, as he was the responsible manager, he should have seen that the prop was fixed. The case had to be adjourned, in consequence of the absence of a necessary witness.

The Earl of Shaftesbury has been this week on a visit to North and South Staffordshire, with a view to ascertain the working of the Factories Act in the former locality, and of the need of its adoption in the latter.

The dispute between Messrs. Lloyds, Foster, and Co. and their men at Wednesbury has been amicably arranged.

THE ASSOCIATION FOR THE PREVENTION OF STEAM-BOILER EXPLOSIONS, AND FOR THE ATTAINMENT OF ECONOMY IN THE USE OF STEAM.—The monthly meeting of the executive committee of this association was held at the offices, Corporation-street, Manchester, on Tuesday, Mr. Hugh Mason, of Ashton-under-Lyne (Vice-President), in the chair, when Mr. L. E. Fletcher, chief engineer, presented his report, from which the following is extracted:—

During the month 305 engines have been examined, and 509 boilers, as well as four of the latter tested by hydraulic pressure. Of the boiler examinations, 318 have been external, 7 internal, and 184 entire. In the boilers examined, 203 defects have been discovered, 12 of those being dangerous. Of some of the defects found to exist a few particulars are given.

FURNACES OUT OF SHAPE.—One case occurred at night time on an ordinary double-furnace Lancashire boiler, when in charge of the watchman, who, on the engines stopping for want of steam, went to the boiler to see what was the matter, and found that the water had gone out of sight in the gauge glass. The fire was at once drawn, happily in time to prevent explosion, but not before the furnace crowns were injured so as to need repair. The watchman states that the water was 7 in. high in the gauge glass half-an-hour before, and, as the arrangement of the feed apparatus was defective, it is possible that the water may have escaped. This shows the importance of having the feed inlet above the level of the furnace crowns, so that they cannot be asphyxiated here, even though the back pressure valve or any other part of the feed apparatus should fail. This arrangement of feed inlet has been frequently recommended in the Association's monthly reports, while this was repeated in written communications addressed to the owner of the boiler. If, however, the feed was neglected by the watchman, a low water safety-valve would have aroused his attention, and also prevented all danger of explosion by letting off the pressure of the steam on the waters falling below the proper level. These simple precautions are recommended to all, but more especially to those steam users who allow their boilers to be worked at night time in charge of watchmen. A detailed drawing of the arrangement of feed inlet recommended lies at these offices for the assistance of the members.

FRACTURES.—One was met with at the bottom of an ordinary double-furnace Lancashire boiler, when it rent at a transverse seam of rivets for a distance of 4 ft. 3 in., and through 27 consecutive rivet holes. This was due to the feed water being delivered at the bottom of the boiler, coupled with the mode of setting, by which the flues split at the back instead of at the front, so that the gases from the furnace did not pass underneath the boiler until their heat was nearly exhausted by traversing the side flues, whereas they should have passed under it immediately after leaving the furnace tubes, and lastly along the side flues.

EXPLOSIONS.—Three explosions have occurred during the month, by which two persons were killed, and three others injured; in addition to which four men have been scalded to death with steam and hot water; three of them from the fracture of a blow-out pipe at the bottom of a boiler. Not one of the boilers was under the charge of this Association.

CORROSION, EXTERNAL.—One case occurred to a horizontal water tube, two of which were attached to the bottom of an ordinary mill boiler, and ran along underneath it for nearly its whole length, so that the general arrangement became somewhat similar to that of a French or elephant boiler—with this exception, however, that it was fired internally, while the others are fired externally. The horizontal water tube was about 20 feet long, and affected at the side close to the brickwork, the corrosion extending for a width of about 5 in. from one end of the tube to the other, the plate being so reduced in thickness that the inspector, on scraping off the oxide, ran his chisel through the metal, and found that he could tear it away almost like a sheet of paper. Fortunately, the diameter of the tube was small, and the pressure of the steam low, or explosion would not have been escaped.—A second case was met with in an ordinary double furnace, internally-fired, Lancashire boiler, and occurred at the side walls on which the boiler was seated, extending from one end of it to the other, and being so dangerous that the boiler had at once to be condemned. The corrosion was caused by damp rising from the bottom flue, accelerated in its influence on the plates by the injudicious mode in which the boiler was set, which instead of being carried on firebrick

blocks, with a bearing surface of about 4 or 5 in., was let down on to the solid brick-work, which had a bearing surface 9 in. wide, while the bottom of the external side flange was flat. Thus, the surface of the solid rose more readily through the brick-work to the plates, and any water percolating into the side flange drained between the bearing and the boiler.

It may, perhaps, be permitted to suggest to the makers of Portable Boilers the importance of adopting a simple and efficient dead weight safety-valve. There may be a difficulty in applying internal dead weight safety-valves from want of room, but there is a description of external dead weight valve, many of which are under inspection, that seems well adapted for portable boilers. In this valve the weight is in the form of a hollow cylinder, which drops over the seat, and is suspended from it, so that it is pendulous in its action, and having neither spindle nor wing to become bound in the seating, it does not appear possible for it to stick fast. It can be placed, as stated, outside the boiler, and thus in view, so that it could not be overweighted without detection. A number of these valves are at work under the inspection of this association, they are found to give every satisfaction, and it is thought that if all portable boilers were fitted with them many explosions would be prevented.

RAISING WATER ECONOMICALLY FROM MINES.

It almost invariably happens that the greatest improvements in connection with mechanical inventions are the result of slight modifications in detail, which to the unpractised eye are inappreciable, and hence it is that we find many of the most important inventions, either condemned as old and useless, or neglected for so long a time that the inventor fails to obtain the reward to which he is justly entitled. During the past 10 years reference has from time to time been made to the improved Chain-Pump, invented by Mr. J. U. BASTIER, yet it is only within the past few months that it has obtained recognition amongst those who have sufficient influence to secure its general adoption. At the recent meeting of the North of England Institute of Mining Engineers, Mr. THOMAS GREENER, the well-known mining engineer of Darlington, read a paper "On the Improved Method of Raising Water Economically from Mines by Bastier's Patent Chain-Pump," a full abstract of which is subjoined, as confirming the favourable opinion which has ever been expressed in the columns of the *Mining Journal* upon the merits of the invention:—

The necessity which has long been felt for some improved mode of raising water from mines of various depths has recently been strongly expressed in the papers read and discussed before the members of this Institute. The desire for such improvement is daily experienced by all whose duty it is to superintend, or whose work it is to manage and keep in repair, the complex, cumbersome, and expensive machinery up to this time employed; and to those who embark their capital in mines the necessity of some cheaper mode must be so apparent in their periodical balance-sheets, that they will be ready fully to appreciate any real improvement:—1. By smaller outlay in the erection of machinery. And, 2. In the reduction of regular working cost, by a decreased consumption of fuel, by less liability to accident, and by a diminution of wear and tear. This subject is looked at, too, with great interest by those who see, or think they see, the future probable necessity of raising water from still greater depths than the present, and that with the employment of a proportionately smaller amount of power than has yet been attempted—whether by the ancient plan of drawing water by tubs, the old beam pump, or the direct-acting pump. It may, therefore, be expected that the advocacy of any attempt to meet this necessity of improving the method of raising water economically from mines is likely to be listened to with patience, the principles of that method, examined with care, and the appliance fairly tested by experiment, before a judgment is formed on its merits, however much the peculiarity of that appliance may clash at present with the opinions of those gentlemen who have given the whole subject of raising water from mines their careful attention.

The other departments connected with coal mines have, during the last 30 years, been improving, such as in the adoption of cages and tubs, instead of corves, and of the apparatus for washing small coal; the use of wire-ropes for shafts and on inclines, instead of hemp or chain; bridge rails and roller wheels, instead of the old trams and flat tramway; electrical signals, instead of large lanterns, wires, and hammers; notwithstanding the present attempts, in some measure successful, of hewing coal by the employment of coal-cutting machines. These have all advanced very considerably. Yet, while all has been going on, the principle and modes of raising water from mines are the same as those that were in use before the oldest miner now living was born. Indeed, the only improvements that have been attempted in this department have been more in the quality of engines and boilers used to work the pumps, and in the mode of connecting the pumps to the engines, than in any radical change in the pumps themselves. Until very recently no successful attempt was made to complete the construction of a pump to work in harmony with universal natural laws, and which should be simple in its mechanism, easy of application, uniform in its action, and economical in its results. However, I have now the honour of bringing before the members of this Institute a machine which fully answers this description; for such, it may be asserted, is the apparatus known by the name of "Bastier's Patent Chain Pump." After illustrating its principle, and after placing before you a few facts from actual results, I hope I shall be able to prove to this meeting that this pump is capable of doing more work, at greater depths, with less risk of accident, and doing it more economically, than any other description of pump known to be in use at the present time.

The apparatus consists of—1. An iron glass enamelled tube, reaching from the delivery drift to nearly the bottom of the sump. The mouth-piece at the bottom is in the shape of a funnel or bell, above which is a contracted tube, 10 ft. long, the diameter of which is about 3-16ths of an inch less than the rest of the tube. In great depths this 10 ft. of contracted tube is repeated every 50 yards. 2. At the top of the pit is a cast-iron frame, bearing a shaft, on which is a pulley, for the purpose of guiding a chain for raising the water. On this shaft there is also a driving wheel for a belt or cog-gearing, as the case may be. Also, on the same shaft, there is a guard to prevent the weight of water carrying back the wheels in a contrary direction whenever the engine employed in turning them has occasion to stand. The groove of the pulley is cast with openings for each link of the chain to fall into. On its outer rim there are gaps into which the discs fit; this arrangement also secures the grip of the chain upon the pulley, so that under ordinary circumstances it is impossible for it to surge. 3. The chain is endless, passing over the pulley, down the open shaft, and up through the tube which is to convey the water to the delivery. It is made of links, exactly uniform in size to fit the openings on the wheel; at intervals of about 3 ft. 3 in., a disc of India-rubber is fixed on a bar of iron betwixt two links of the chain. This bar is so arranged to be easily disengaged whenever the disc may need to be repaired. The disc was at first made of three pieces of India-rubber; but now it is made of one piece, as illustrated by the drawings. On both sides of the disc there is an iron plate, which is keyed on. By tightening or slackening the keys, the India-rubber can be enlarged or contracted in the tube. 4. The mouth-piece, which is in the sump, is fastened between two perpendicular pieces of timber, which are fixed into the bottom and secured to the side of the shaft. Just opposite the bell-mouthed entrance of the tube, and a little lower, there is a wooden roller as a guard to the tube and a guide to the chain and disc, to secure for them a proper entrance into the mouth of the tube.

When the pulley at the top is set in motion, the chain and its discs being equal in weight on each side of the pulley, nothing remains to be lifted but the water, and for this purpose the chain and its discs move up the tube, so that the discs may in this place remove the air and create a vacuum. The atmosphere, with its pressure of 15 lbs. to the square inch, is, in obedience to its natural law, ever ready to assist when arrangements are made to work in harmony with it. In this case there is that harmony. The pressure of the atmosphere is uniform and constant, so is the motion of these discs; they pass rapidly through the lower contracted tube, in which the discs are perfectly air-tight. A vacuum is thus made, and as the action is continuous the atmosphere has liberty to do its work continuously also, since it follows up its pressure without let or hindrance by any such periodic stoppages as occur from 12 to 30 times in every minute in pumps of the present mode. So that, without any interruption, this willing agent raises the water full 5 fms. in the tube; and this is all it can do, but happily it is quite enough for the purpose. This important start being effected, accumulated motion (momentum) is obtained, and sufficient power to continue the motion and keep it up, and what has thus been obtained, no fears need arise as to the result. With that friendly ally, the atmosphere, moving on the surface of the water and ever continuing its powerful aid, the force once put into the water and carefully husbanded (added to all a sufficient power above in the steam-engine which is employed to supplement, not in favour of the present mode to destroy, those combined friendly forces), everything is now in favour of landing the water at the destination desired in whatever quantities required, or at whatever depths the water may be found.

This description will show that the apparatus is simple in its construction, and very little liable to accident, and that the only point of application to the fact is in the ease of 15 in. cut off by a straight line from 10-ft. shaft is more than enough for a large sized pump to work in. Uniformity of action is the distinguishing characteristic of this pump. With the use of the India-rubber discs, these being air-tight only in the contracted parts of the glass enamelled tube, and in the other parts just as tight as to enable each disc to carry its own load of water, the chain being of proportionate substance, and made of the best iron, the speed may be increased to almost any degree. It will thus be seen that the motive power is so economical, and the wear and tear is so small, that there can be no other conclusion arrived at than that this apparatus is able to raise a larger quantity of water from a greater depth, at a less cost, than any other kind of pump now in use.

The peculiar advantages of this pump, in comparison with others employed, may be shown as follows:—1. It is uniform and continuous in its action. 2. There is much less loss of motive-power, as the descending chain and discs are equal in weight to those ascending. 3. Greater speed is gained than can be had with an alternating pump; and, therefore, less sectional area of pump is required to deliver equal quantities of water. 4. These buckets or discs being solid, but elastic, will admit of foreign matter, such as stones, coming between them and the sides of the pipe, without doing any injury; indeed, pieces of wood, stones, &c., small enough to get upon the discs, can be conveyed to the top and delivered there without any mischief whatever to the pump; so that gaggled clocks, &c., will cease to annoy the "changer and grather," and to stop the pumping operation, when this pump is adopted. 5. There being no buckets with falls and separate clocks in this pump, as in the lifting-pump; or air-tight stuffing glands and chambers, as in the forcing or ram-pump; this chain-pump will not "work on air," which is at present a great source of accident to the pipes, &c. 6. This pump is less liable to break in any of its parts than the ordinary pump; moreover, it can be more easily repaired, should any accident happen, as in the case of the chain, which kind of accident happened three times at Wharfedale, near Tharstock, when the chain fell to the bottom of the shaft, 55 fathoms deep, which was nearly full of water. On each occasion the chain was fished up in two hours. 7. Another but minor advantage to be derived from the use of this pump is its easy application to raise water to be delivered at various heights in the same tube. This may be understood by reference to the drawings prepared for Newton Colliery, where it is necessary to raise 800 gallons per minute from the mine, and about 120 gallons per minute of this quantity is to be raised above the surface, in all, about 50 fathoms from the bottom, to supply the coke ovens. It is shown that the remaining 800 gallons per minute can be left at the delivery drift, which is only 35 fathoms. Indeed, by this arrangement, any proportion may be sent up to the top, or the whole of it may be sent away at the delivery-drift. This is a peculiarity which no other pump would admit of.

Now, as to actual experience to verify these assertions. Up to the present time there are very few facts; but few as they are, they are valuable, and enough to inspire confidence for the further adoption of this pump. There is, first, the pump which was fixed upwards of five years ago, and worked so successfully, for more than six months, at Wharfedale. This shaft was 351 feet deep; diameter of pump inside, 8 inches; circumference of wheel, 13 feet; speed per minute, 32 revolutions, which, multiplied by 13, gives 416 feet per minute; the quantity lifted per minute, as measured by the engineer of the Birkhead Waterworks (10 gallons per revolution), was 320 gallons. This pump was worked by a water-wheel of 25-horse power in winter, and by a 25-horse steam-engine in summer. About 17 days after starting the first chain broke different times, the iron of which it was made being very bad. It was replaced

by a new chain of the same dimensions, after which the pump worked night and day for upwards of six months, when the mining company stopped their operations for want of money. The horse-power mentioned in this case is nominal. It would take about 35-horse power indicated to do the work. The next case is that of a pump 178 feet, fixed at the Patent Rice Starch Works of Messrs. W. Berger and Co., of Bromley-by-Row. Their engine, 25-horse power, has to drive the machinery and pump the water. Up to February, 1862, the water was pumped by two ordinary pumps from the best makers, each 6½ inches diameter. It was found that the engine was not able to do all the work, and their engineer advised them to put in one of these pumps rather than buy a new engine. This was done. A 4½-inch pipe, glass enamelled inside and outside, was adopted. This now pumps more water than they require, and the engine is more than sufficient for all their work. The discs travel at about 180 feet per minute, raising about 120 gallons per minute. This pump has now been at work upwards of two years, and never cost 6d. for repairs, and the discs are as good for the work they have to do as ever they were. For some time after it commenced the engine man thought it necessary to keep the discs tight in the contracted tube. During that time the works were stopped for repairs for nearly two weeks, and at the end of that period the column was still standing entire in the pipes. In practice he found this a little inconvenient, having all the column to start on the first movement of the engine. He, therefore, eased the discs which press the iron plates upon the disc, and thus contracted the disc a little, so that now the column will run out in about half-an-hour, and the water is lifted quite as efficiently. The engine man says that they quite forget they have a pump at work. It is to be regretted that in this case, as in the one already mentioned, no account has been taken of the quantity of coal consumed; but the power required for this pump cannot be very great, when the engine man scarcely perceives the fact of the pumps being taken from the engine, and the fireman cannot tell when it is on or off. The only other case where this pump has been at work was at the Great Exhibition of 1862, where they ran the discs at 1000 feet per minute, and utilised 50 per cent. of the power employed. [By way of appendix, Mr. Greener gives an interesting statement, comparing Bastier's pump with the ordinary Cornish engine and pumps, the result being, as will be seen, that pumping by the Cornish method is nearly twice as costly.]

Bastier's patent pump, to lift 1000 gallons per minute 100 fms. Diameter of pipe, 10 in., cast-iron, enamelled inside:—
 Price of pump £1540
 " 250 horse-power Cornish's engine 1875
 " Erection, carriage, &c. 385
 Total cost of pump for 100 fms. £3800
 Apparatus cost 12s. 8d. per 100 gallons per foot per minute. Fuel consumed, 7 tons of coals every 24 hours, to do 6,000,000 units of work per minute.
 Particulars of cost of a Cornish pumping engine and pumps lately fixed at a colliery in the Midland counties, to lift 1000 gallons per minute 70 fms., fixed in a shaft 10 ft. in diameter, two 18 in. sets:—
 Cost of engine £3130 0 0
 Four boilers and fittings 622 2 10 = £3752 2 10
 Pumps 1513 14 8
 Total £5265 17 6
 Cost of apparatus, 25s. per 100 gallons per foot per minute. Six tons of coal used every 24 hours, to do 4 1-5 millions of units of work per minute; showing a saving of 1½/ton per day in favour of Bastier's chain pump.

The small number of instances in which the Pump has been introduced, considering how long it has been before the public, is really remarkable, and the patentee will, doubtless, have a good case for obtaining an extension of his patent. It is much to be regretted, however, if the pump possess the many advantages claimed for it, that it should have taken ten years to sell some half-dozen pumps. That the invention will now obtain the practical trial it deserves is beyond question; and, judging from the results obtained with the 15-in. pump, started at the Water-works at Hoddesdon within the past few days, it seems probable that the merits of the pump will henceforth be more generally recognised. The Hoddesdon pump being the largest yet erected, the publication of the work done, &c., which we hope to make in next week's *Journal*, cannot fail to prove interesting.

A GOOD LEAD MINE WANTED, TO FORM INTO A JOINT-STOCK COMPANY. Any gentleman possessing the lease of a property of this description will find the present a favourable opportunity for disposing of it.—Address, "A. B.," *Mining Journal* office, 26, Fleet-street, London, E.C.

A CORNISH MINE AGENT REQUIRED, TO TAKE THE RESIDENT MANAGEMENT OF A COPPER MINE IN IRELAND. A man under 40, and who has been underground agent in a large mine, preferred.—Address, with full particulars as to past engagements, salary expected, &c., to "S. E.," *Mining Journal* office, 26, Fleet-street, London, E.C.

WANTED, A SITUATION AS MINE AGENT, to superintend a small mine.—For particulars, apply to MATTHEW GROSSE, Junr., South Foxdale, Rushen, Isle of Man.

WANTED, A YOUNG MAN AS SHARPENER OF BORERS in a SLATE QUARRY in NORTH LANCASHIRE. Applicants to apply to JAMES RAY EDDY, Carlisle Grange, Skipton.

WANTED, A PARTNER, who could invest £2000, to JOIN A COMPANY (at present in full work) to more FULLY DEVELOPE AN IRON ROYALTY consisting of 2000 acres, situated in the best hematite iron district in the North of England, which also contains roofing slate and slate flag of fine quality and abundant quantity. There is also a large deposit of clay, which the company are at present making into bricks, tiles, &c., which have a large demand in the neighbourhood. The royalties, as above, have been secured for 21 years, on very favourable terms, from the lessor, and offers a certain and lucrative investment.—Further particulars may be had on application to "J. K.," Box 59, Whitby.

INVESTMENT AND SPECULATION.—A GENTLEMAN of very extensive practical experience, and possessing unusual facilities for obtaining reliable information, is PREPARED TO ADVISE upon the PURCHASE AND SALE of all kinds of securities, and to transact business at the closest market quotations. References exchanged.—Address by letter, to "Mentor," No. 29, Montague-street, Russell-square, London.

A GENTLEMAN having an extensive connection with Merchants, Manufacturers, and others, would be GLAD TO UNDERTAKE THE SALE OF PATENTED ARTICLES OR INVENTIONS, on commission.—Apply to Mr. W. T. RAWLE, patent and mining agent, 8, Small-street, Bristol.

IMPORTANT TO CAPITALISTS AND MINING COMPANIES.—The ADVERTISER, who is a Cornish Mining Captain of 40 years' experience, both in England, Wales, Ireland, France, and Italy, and now resident in the latter country, is OPEN TO AN ENGAGEMENT TO INSPECT MINING PROPERTIES. The Advertiser is also in possession of, and acquainted with, several VALUABLE PROPERTIES, containing lodes of GOLD, SILVER, LEAD, COPPER, and NICKEL ORES, which he is authorised TO DISPOSE OF. He will be happy to afford information on all points connected with mining. All applications to be addressed Capt. JOHN KESSELL, Burgofrancia, Ivrea, Italy; or Scopello Mines, Scopello, Val-Sesia, Piedmonte.

TO MINING AND BANKING COMPANIES.—A GENTLEMAN, 25 years of age, who has just completed a course of instruction in assaying Gold, Silver, and other Metals, at the Laboratory of the Royal School of Mines, is DESIROUS OF OBTAINING EMPLOYMENT in that capacity either at home or abroad.—Address, "D. E. B.," Post-office, Jernyn-street, S.W.

TO CAPITALISTS.—THE CONCESSION OF A LEAD AND SILVER MINE FOR SALE, capable of producing immediate returns. It is seldom that a more favourable opportunity occurs for realising large profits. Working has been commenced. Price, including plant and material, £2500. A small capital only is necessary for operation.—Address, "Beta," Messrs. Dennis and Co., No. 57, Aldermanbury, London, E.C.

RICH AND VALUABLE MINERAL PROPERTY IN THE COUNTY OF CORK, IRELAND.—A large and extensive MINERAL PROPERTY, on which several rich and valuable lodes are discovered, intersected by large cross-courses; three of the lodes are partially developed, and have produced a very considerable quantity of rich copper ore. Immediate and valuable returns can be made on commencing operations. A respectable and solvent party can obtain a lease of the above property, and for further particulars, and terms, apply to Capt. HENRY THOMAS, Manager of the Roaring Water Mines, Skibbereen, County Cork, Ireland.

COLLIERY, SOUTH WALES.—TO LET (the present lease being about to expire), a LEVEL FIRE COLLIERY, offering great advantages, worked by level and very simply. Capital required very small.—Apply to R. T. BROWN, Esq., Kidwelly, Carmarthenshire; or to L. GRIFFITHS, Ynysgerwn, near Neath.

PROVINCIAL (WELSH) INSURANCE COMPANY.—WANTED TO PURCHASE, some Shares in the above company.—Apply, stating price, to Mr. JOHN BRY, Hillbury, Wrexham.

PORTABLE ENGINES, with PIT WINDING GEAR.—Portables in stock up to 14-horse power. Gear to order to suit circumstances.—Apply to HARRISON and CARMICHAEL, engineers, Banbury, Oxon.

JOSEPH TAYLOR AND CO., FINANCIAL, MINING, AND GENERAL AGENTS, 17, CROSS STREET, MANCHESTER. DEALERS IN MINING AND OTHER SHARES.

MESSRS. C. THOMAS AND CO., CIVIL AND MINING ENGINEERING OFFICES, POOLFOLD CHAMBERS, CHAPEL WORKS, MANCHESTER, AND REDRUTH, CORNWALL.

MR. GEORGE DARLINGTON, CONSULTING MINING ENGINEER (Graduate of the Royal School of Mines), GROVE PARK, WREXHAM.—MR. DARLINGTON IS OPEN TO ACCEPT ENGAGEMENTS TO REPORT UPON, MODEL, OR ARRANGE MINES OR MINING WORKS, and from his practical and varied experience in all kinds and classes of mines, both abroad and at home, especially on the Continent, in America, and in Australia, he can confidently offer his services to those who may require faithful reports or examinations of mining properties at home or abroad. Mr. DARLINGTON speaks French and German fluently, and is acquainted with the mining laws of those countries.

BEARDWOOD, JONES, AND CO., 17, CANNING CHAMBERS (Opposite the Custom House), LIVERPOOL, FORWARDING, COMMISSION, AND SHIPPING AGENTS. Being intimately acquainted with the shipping of Iron, Hardware, Crates, &c., to all ports, we can offer superior advantages to Merchants and Manufacturers, both in low freights and moderate shipping charges. Marine Insurance effected.

India Office.

BY ORDER OF THE SECRETARY OF STATE FOR INDIA IN COUNCIL, notice is hereby given that the DIRECTOR-GENERAL OF STORES FOR INDIA will be READY, on or before MONDAY, the 11th inst., to RECEIVE PROPOSALS in writing, sealed up, from such persons as may be willing to supply—
 BEST BRITISH IRON.
 And that the conditions of the said contract may be had on application at the India Store Office, Cannon-row, Westminster, where the proposals are to be left any time before Two o'clock P.M., of the said 11th day of June, 1866, after which hour no tender will be received.
 GERALD C. TALBOT, Director-General.
 India Office, June 1, 1866.

India Office.

BY ORDER OF THE SECRETARY OF STATE FOR INDIA IN COUNCIL, notice is hereby given that the DIRECTOR-GENERAL OF STORES FOR INDIA will be READY, on or before MONDAY, the 11th inst., to RECEIVE PROPOSALS in writing, sealed up, from such persons as may be willing to supply—
 CAKE COPPER.
 And that the conditions of the said contract may be had on application at the India Store Office, Cannon-row, Westminster, where the proposals are to be left any time before Two o'clock P.M., of the said 11th day of June, 1866, after which hour no tender will be received.
 GERALD C. TALBOT, Director-General.
 India Office, June 4, 1866.

IN THE MATTER OF THE COMPANIES ACT OF 1862, and of the EAST POLBERRO TIN MINING COMPANY (LIMITED).—TENDERS are INVITED, stating the highest price that will be given, for a 36 in. cylinder ENGINE, BOILER, PITWORK, MATERIALS, and other effects, belonging to the above company, at St. Agnes, Cornwall. Tenders to be sent to the Liquidator not later than Monday, the 18th June. Printed particulars may be obtained on application to JOHN CLAY, Accountant, 20, Cow Green, Halifax (the Liquidator); Capt. ARTHUR GRIFE, St. Agnes, Cornwall; or Messrs. NORRIS and FOSTER, Solicitors, Halifax.

NATIONAL PROVINCIAL BANK OF ENGLAND.—The Directors of the National Provincial Bank of England hereby give notice that a HALF-YEARLY DIVIDEND at the rate of EIGHT PER CENT. PER ANNUM, and a HALF-YEARLY BONUS OF EIGHT PER CENT., will be PAYABLE on the company's stock on and after the 9th day of July next, when the Dividend and Bonus Warrants may be obtained at the company's office, No. 112, Bishopsgate-street (corner of Threadneedle-street), or at the different branches.
 The Transfer-books will be closed on and after Saturday, the 9th inst., until the dividend and bonus become payable.
 By order of the Court of Directors,
 A. ROBERTSON, Agent and Manager.
 112, Bishopsgate-street, London, June 5, 1866.

METROPOLITAN DISTRICT RAILWAY COMPANY.—Notice is hereby given, that the TRANSFER BOOKS WILL BE CLOSED from the 25th to the 30th day of June, PREPARATORY to the PAYMENT of the HALF-YEARLY INTEREST due by the contractors on the 1st of July next.
 Provisional scrip certificates, fully paid-up £100, bearing 6 per cent. per annum, and ordinary £10 paid, bearing 5 per cent. per annum, must be forwarded to the Registrar at the offices of the company, in order that the dividend warrants may be duly prepared.
 GEORGE HOPWOOD, Registrar.
 6, Westminster Chambers, Victoria-street, S.W.

THE DIRECTORS OF THE WESTERN AFRICA MALACHITE COPPER MINES COMPANY (LIMITED) hereby give notice that an EXTRAORDINARY GENERAL MEETING of the shareholders of the company will be HELD at the offices of the company, No. 6, Queen-street-place, Upper Thames-street, in the City of London, on THURSDAY, the 28th day of June inst., at Two o'clock P.M., for the following objects:—

- 1.—To read and confirm the minutes of the extraordinary general meeting held on the 5th day of June inst.
 - 2.—To read and confirm, or otherwise, the resolutions passed at the said extraordinary general meeting, held on the 5th day of June inst., viz.:—
 1.—That the company be wound-up voluntarily under the provisions of the Companies Act, 1862.
 - 2.—That Mr. John Phillips be appointed paid liquidator, with authority to exercise the powers specified in the 159th, 160th, and 161st, and all sections of the Companies Act, 1862, relating to the voluntary winding-up of a company, and all other powers which the shareholders in ordinary or extraordinary general meetings may exercise; and that he be paid for his personal remuneration a sum not to exceed £50, and for other charges not more than £50.
 - 3.—That Robert Henry, Edward Gregson Banner, and Richard Taylor, Esqs., be appointed a committee for the purpose of supervision and control, with the power of convening meetings of shareholders.
- By order of the Directors,
 Dated this 5th day of June, 1866. JOHN TAYLOR AND SONS.

THE ROSSA GRANDE GOLD MINING COMPANY (LIMITED).—Notice is hereby given, that the directors have this day made a CALL of TWO SHILLINGS AND SIXPENCE PER SHARE, PAYABLE at the London and Westminster Bank, Lothbury, on or before the 7th day of July next. The transfer books will be closed from the 9th to the 16th of June, both days inclusive.
 By order, J. JAMESON THURAN, Sec.
 192, Gresham House, Old Broad-street, London, June 7, 1866.
 N.B.—By the Articles of Association calls in arrears are subject to interest at the rate of 10 per cent. per annum.

NICKEL AND COBALT REFINING, AND GERMAN SILVER WORKS, 16, OZZELL STREET NORTH, BIRMINGHAM.
 STEVEN BARKER begs to inform the Trade that he has the following articles on sale:—
 REFINED METALLIC NICKEL. OXIDE OF COBALT. [WIRE, &c.]
 REFINED METALLIC BISMUTH. GERMAN SILVER—IN INGOTS, SHEET
 NICKEL AND COBALT ORES PURCHASED.

GOLDENHILL, COBALT, NICKEL, COLOUR, BORAX, AND CHEMICAL WORKS.
 NEAR STOKE-UPON-TRENT, STAFFORDSHIRE.
 JOHN HENSHALL WILLIAMSON, MANUFACTURER AND REFINER.
 Purchaser of Borate of Lime and Tincal.

ROBERT LIBBY AND SON, MINE AND SHAREDEALERS, &c., CAMBORNE, CORNWALL.
 NEW LOVELL.—We recommend the immediate purchase of those shares, as the mine has considerably improved of late, and adjoins the famous rich East Lovell. For particulars, apply to R. LIBBY and Son.
 Mines inspected by competent agents.

TO MINE, SLATE QUARRY, AND RAILWAY COMPANIES.—CAPT. C. WILLIAMS is NOW OPEN TO UNDERTAKE ALL KINDS OF CONTRACTS, such as DRIVING LEVELS, SINKING SHAFTS, CONSTRUCTING WATER COURSES, CANALS, TRAMWAYS, &c., AND ERECTING ALL SORTS OF MACHINERY FOR MINING AND OTHER PURPOSES, having on hand at all times a first-class staff of miners and machinists, who will proceed to any part of the world upon the shortest notice.
 N.B.—In all cases 30 per cent. will be left in hand until the work is complete.
 Tyn-y-Wern, Taliesin, via Shrewsbury.

ELFORD, WILLIAMS, AND CO. COPPER ORE WHARFERS, SHIP BROKERS AND COAL EXPORTERS, METAL AND GENERAL COMMISSION AGENTS, SWANSEA.

ELFORD, WILLIAMS, and Co. having erected an assay office, and engaged the services of a practical Cornish assayer, who will devote his whole time to this branch of their business, they are now in a position to make correct assays of silver, copper, and other mineral ores, on the most moderate terms.

TO ENGINEERS, MINING COMPANIES, AND OTHERS.
JOHN TURNER (of Sheffield), 3, FINKLE STREET STOCKTON-ON-TEES, MANUFACTURER AND REFINER OF SUPERIOR CAST-STEEL FOR MINING DRILLS, PUNCHES, TURNING TOOLS, AND TAPS, at reasonable prices.
 Soliciting a sample order.
 A Stock of Steel and Mining Tools kept at the above address.

NORTH OF ENGLAND MINING AND ENGINEERING OFFICES, MANCHESTER.

MESSRS. HARVEY AND CO., MINING ENGINEERS, AGENTS, AND SHAREDEALERS, CLARENCE CHAMBERS, MANCHESTER. are at all times in a position to deal in all the market Dividend and Progressive Mine shares, and also to advise on all mining matters, being practically acquainted with the business, and having a daily communication from the mining districts of Devon and Cornwall.
 Messrs. HARVEY and Co. publish a monthly "Mining Circular," containing a valuable summary of mining information. Subscription, 6s. per year.
 Bankers: The Consolidated, Manchester; and the Alliance, Lothbury, London.

MESSRS. HARVEY AND CO., of CLARENCE CHAMBERS, MANCHESTER, are anxious to state that they have NO CONNECTION with HARVEY AND CO., of HAYLE, and recently of Clarence Chambers, London, who supply mine materials.

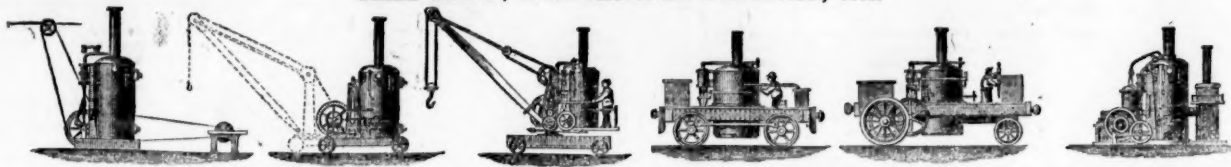
MINING OFFICES, MANCHESTER.
THOMAS MOLYNEUX AND CO., MINE AGENTS AND SHAREBROKERS. Reliable information can be obtained as to purchase and sale of shares.
 Offices of the Ellen United Copper and Zinc Mining Company (Limited), and Hazel Grove Silver-Lead Mining Company (Limited). THOS. MOLYNEUX, secretary, 28, Princess-street, Manchester.

MANCHESTER, AND WEST END OF LONDON.
M. R. W. HANNAM, MINING, SLATE QUARRYING, INSURANCE, AND GENERAL SHAREBROKER. ROYAL INSURANCE BUILDINGS, KING STREET, MANCHESTER; and 31, REGENT STREET, LONDON, S.W.
 INSTANTANEOUS COMMUNICATION with the STOCK and MINING EXCHANGES, avoiding the delay and annoyance of visiting the City to ascertain prices.
 A Monthly Investment Circular on application.

**WASHOE, REESE RIVER, AND OTHER MINES AND MINERAL PROPERTIES IN NEVADA AND CALIFORNIA, INSPECTED AND REPORTED ON, with Assays and Analyses to show the character as well as extent of the ore, and instructions as to the most economical method of reduction, by W. T. RICKARD, F.C.S., M.G.A., &c. (late Mitchell and Rickard, London), GOLD HILL, NEVADA, U.S.
 London Agent:—T. W. BARR, Esq., 12, Paternoster-row.**

CHAPLIN'S PATENT PORTABLE STEAM ENGINES AND BOILERS.

PRIZE MEDAL, INTERNATIONAL EXHIBITION, 1862.

STATIONARY ENGINE,
From 1 to 30-horse power.
No building required.PORTABLE HOIST,
1 to 30-horse power.
With or without jib.STEAM CRANE,*
20 cwt. to 20 tons.
For wharf or rail.CONTRACTORS' LOCOMOTIVE,
6 to 27-horse power.
For steep inclines and quick curves.TRACTION ENGINES,
6 to 27-horse power.
Light and heavy.SHIP'S ENGINE,
Winding, cooking, and distilling.
Passed by Government for half water.

* These cranes were selected by H. M. Commissioners to receive and send away the heavy machinery in the International Exhibition.

From the STRENGTH, SIMPLICITY, and COMPACTNESS of these ENGINES they are extensively USED for GENERAL PURPOSES, and also in situations where STEAM-ENGINES OF THE ORDINARY CONSTRUCTION CANNOT BE APPLIED.

ALEXANDER CHAPLIN AND CO., PATENTEES AND SOLE MANUFACTURERS,

CRANSTONHILL ENGINE WORKS, GLASGOW. LONDON OFFICE,—11, ADAM STREET, ADELPHI, LONDON, W.C.

ENGINES OF EACH CLASS KEPT IN STOCK FOR SALE OR HIRE, AND ALL OUR MANUFACTURES GUARANTEED AS TO EFFICIENCY, MATERIAL, AND WORKMANSHIP.

Parties are cautioned against using or purchasing imitations or infringements of these patent manufactures.

NOTICE.—Notice is hereby given, that the COAL BUSINESS CARRIED ON for many years by Mr. J. DUNSTAN will, on and after the 1st March next, be CONTINUED under the FIRM of J. DUNSTAN AND CO. To the above will be ADDED the BUSINESS of GENERAL MERCHANTS, AUCTIONEERS, MINE BROKERS and SHAREDEALERS, MINE PURSERS, COMMISSION AGENTS, ACCOUNTANTS, &c.

J. DUNSTAN and Co. hope, by strict application to all matters of business entrusted to their care, to merit a liberal share of public patronage.—Truro, January 24, 1866.

BASTIER'S PATENT CHAIN PUMP, APPARATUS FOR RAISING WATER ECONOMICALLY, ESPECIALLY APPLICABLE TO ALL KINDS OF MINES, DRAINAGE, WELLS, MARINE, FIRE, &c.

J. U. BASTIER begs to call the attention of proprietors of mines, engineers, architects, farmers, and the public in general, to his new pump, the cheapest and most efficient ever introduced to public notice. The principle of this new pump is simple and effective, and its action is so arranged that accidental breakage is impossible. It occupies less space than any other kind of pump in use, does not interfere with the working of the shafts, and unites lightness with a degree of durability almost imperishable. By means of this hydraulic machine water can be raised economically from wells or any depth; it can be worked either by steam-engine or any other motive power, by clock or slow motion. The following statement presents some of the results obtained by this hydraulic machine as daily demonstrated by use:—

- 1.—It utilizes from 90 to 92 per cent. of the motive power
- 2.—Its price and expense of installation is 75 per cent. less than the usual pumps employed for mining purposes.
- 3.—It occupies a very small space.
- 4.—It raises water from any depth with the same facility and economy.
- 5.—It raises with the water, and without the slightest injury to the apparatus, sand, mud, wood, stone, and every object of a smaller diameter than its tube.
- 6.—It is easily removed, and requires no cleaning or attention.

BASTIER'S PATENT CHAIN-PUMP may be seen daily in operation at Messrs. SAMUEL BAKER and Co.'s Patent Rice Starch Works, Bromley-by-Bow, London, E. Cards of admission to be had on application to the inventor and patentee, Mr. J. U. BASTIER, C.E., or to Messrs. J. JACKSON and Co., Engineers, 17, Gracechurch-street, London.

J. U. BASTIER and Messrs. JACKSON and Co. will CONTINUE TO EFFECT the PATENT PUMP, and will GUARANTEE IT FOR ONE YEAR, or will grant licenses to manufacturers, mining proprietors, and others, for the use of this invention.

OFFICES, 17, GRACECHURCH STREET, LONDON.

Now ready, price 5s., by post 5s. 4d.,
THE MINES OF CORNWALL AND DEVON:
STATISTICS AND OBSERVATIONS, for 1865.
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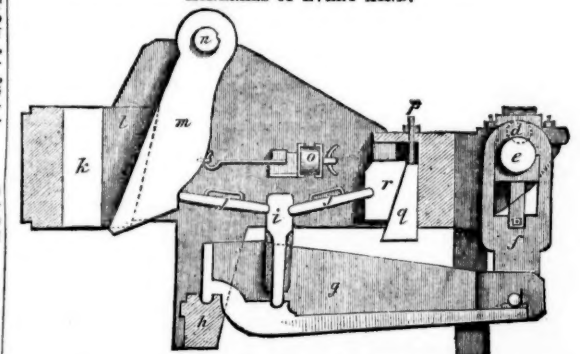


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5000	Orehead (lead), Flintshire	0 5 0	—	—	0 10 4	0 8 6	—
1772	Pobberro (tin), St. Agnes	15 0 0	—	—	7 19 0	0 10 0	—
512	Pobberro (tin), St. Agnes	8 0 0	—	—	1 0 0	1 0 0	—
612	South Toulga (cop.), Redruth	9 10 0	—	—	74 10 0	1 0 0	—
496	S. Wh. Frances (cop.), Illogan [S.E.]	18 18 9	20	15 20	370 13 6	1 0 0	—
4000	St. Day United (tin), Redruth	14 10 0	—	—	0 5 0	0 5 0	—
946	St. Ives Consols (tin), St. Ives	9 15 0	5	6 7	490 10 0	0 10 0	—
572	Trevelyan Consols (tin), St. Ives	15 10 0	—	—	7 0 0	0 10 0	—
1000	Trumpet Consols (tin), near Helston	11 10 0	—	—	0 10 4	0 8 6	—
4000	Vigra and Clogran (copper) [L.]	5 0 0	—	—	11 0 0	2 0 0	—
256	West Darnley (copper), Gwennap	38 10 0	—	—	53 10 0	1 0 0	—
1000	Wheal Bassett and Grylls (tin)	7 0 0	—	—	3 0 0	0 10 0	—
1024	Wheal Kitty (tin), Uny Lelant [S.E.]	3 10 6	—	—	10 2 6	0 7 6	—
612	Wheal Jane (silver-lead), Kea	8 10 0	9	—	15 0 0	0 10 0	—
898	Wheal Margaret (tin), Uny Lelant	13 17 6	—	—	76 5 0	1 0 0	—
100	Wheal Mary (tin), Lelant	11 10 0	—	—	288 5 0	0 4 0	—
80	Wheal Owles (tin), St. Just	2 5 0	—	—	443 8 0	5 0 0	—
3044	Wheal Trevaun (tin), Gwennap	6 11 3	—	—	6 1 3	0 5 0	—
8000	Wharfedale Mining Company [L.]	0 5 0	—	—	—	0 6 6	—

FOREIGN DIVIDEND MINES.

20000	Australasian (cop.), S. Australia [S.E.]	7 7 6	—	—	0 4 0	0 1 0	—
15000	Cape Copper Mining [L.]	7 0 0	10 1/2	9 1/2	2 12 6	0 10 0	—
15000	East Indian Coal, Calcutta [L.]	10 0 0	—	—	—	—	—
25000	Fortuna (lead), Spain [L.]	2 0 0	3	2 1/2	1 3 4	0 3 0	—
10000	Gannalslake (lead) [L.]	5000 £5 paid, 5000 £1 paid	—	—	7 1/2	percent. per annum.	—
15000	Linares (lead), Spain [L.]	3 0 0	2 1/2	—	11 6 4	0 5 0	—
3275	New Wildberg (lead) [L.]	2 0 0	—	—	0 12 0	0 2 0	—
50000	Panellio (copper) [L.]	3 0 0	—	—	—	percent. yearly.	—
10000	Pontbriand (sil.-lead), France [L.]	320 0 0	—	—	2 19 0	0 18 6	—
97500	Port Phillip (gold), Clunes [S.E.]	1 0 0	—	—	0 14 6	0 1 0	—
20000	Scottish Australasian Mining Co. [L.]	1 0 0	—	—	0 3 0	0 3 0	—
11000	St. John del Rey [L.]	50 0 0	—	—	64 15 0	1 0 0	—
50000	Victoria (London) [L.]	25000 £1 paid, 25000 £5 paid	—	—	—	10 percent.	—
40000	West Canada Mining Co. [L.]	1 0 0	—	—	0 19 6	0 2 6	—

FOREIGN MINES WITH DIVIDENDS IN ABEYANCE.

10000	Altan and Quenangan (cop.) [L.]	10 0 0	—	—	4 5 0	0 15 0	—
2454	Burra Barra (cop.), S. Australia	5 0 0	—	—	325 0 0	5 0 0	—
12000	Cobre Copper Co. (cop.), Cuba [S.E.]	40 0 0	14	—	101 0 0	1 0 0	—
10000	Copado Mining Company, Chili [S.E.]	16 0 0	—	—	6 18 0	0 10 0	—
100000	Don Pedro No. Del Rey [L.]	0 14 0	—	—	0 9 0	0 9 0	—
70000	English and Australian	5 0 0	—	—	112 0 0	2 0 0	—
25000	Gen. Mining Assoc., Nova Scotia [S.E.]	20 0 0	19 21	—	21 10 0	1 0 0	—
68000	Kapunda Mining Co., Australia [S.E.]	1 0 0	—	—	0 12 0	0 1 0	—
10000	Lustaniana (Portugal) [S.E.]	2 0 0	—	—	1 7 0	0 3 0	—
10245	Martinez and New Granada [S.E.]	1 0 0	—	—	0 9 6	0 1 6	—
43174	United Mexican (sil.), Mexico [S.E.]	2 5 0	2 1/2	1 1/2	2 19 0	0 5 0	—
10000	Vancouver (coal) [L.]	1 0 0	—	—	0 15 0	0 5 0	—
45000	Yudanamutana (cop.), S.A. [L.]	3 0 0	—	—	0 5 0	0 5 0	—

NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last Pr.	Bus. done.	Last Call.
35000	Alamillos (lead), Spain [L. £2] [S. E.]	2 0 0	1 1/2	—	Fully paid.
100000	Anglo-Brazilian (gold) [L. £1] [S. E.]	0 8 0	—	—	Dec. 1863
25000	Capula (silver), Mexico [L. £2] [S. E.]	1 5 0	—	—	Feb. 1864
3000	Chontales (gold and silver), Nicaragua [L. £5]	2 0 0	3 1/2	3 1/2	April, 1866
10000	Copiapu Smelting [L.], Chili	10 0 0	—	—	April, 1866
800	Copper Miners' Co. of S. Australia [L.] [150 £100 p., 150 £70 pd.]	—	—	—	Nov. 1864
75000	Dun Mountain (copper), New Zealand [L.] [S. E.]	1 0 0	—	—	Fully paid.
50000	East del Rey (gold), Brazil [L. £5] [S. E.]	2 10 0	—	1/2	Jan. 1866
15000	El Chio Silver Mining and Reduction Company [L. £5]	4 10 0	—	—	Jan. 1866
8000	English and Canadian Mining Company [L.]	5 0 0	—	—	Fully paid.
40000	Fortuna (copper), West Australia [L.]	2 0 0	—	—	Fully paid.
50000	Frontino and Bolivia (gold), New Granada [L. £2] [S. E.]	1 5 0	1	1/2	Jan. 1866
80000	Great Northern (copper), South Australia [L. £2] [S. E.]	1 11 0	—	—	June, 1862
10000	Great Barrier Land, Mining, &c., New Zealand [L.]	5 0 0	—	—	Fully paid.
24000	Hindostan (copper), Bengal [L. £5]	2 0 0	—	—	Feb. 1863
100000	Montes Aures (gold), Brazil [L.] [S. E.]	2 0 0	—	—	Fully paid.
12000	Nerbudda Coal and Iron [L. £20] [6000 £5 pd., 6000 £3 pd.]	—	—	—	Aug. 1865
50000	Nova Scotia (land and gold) [L. £2]	1 0 0	—	—	Nov. 1862
15000	Ota (copper) New Zealand [L. £3] [5000 fully paid]	1 10 0	—	—	April, 1866
15000	Pachua Silver Mining Company, Mexico [L. £1]	1 0 0	—	—	June, 1863
4000	Peel River Land and Mineral [Limited]	100 0 0	—	—	Stock.
20000	Quebrada (copper), Venezuela [L. £10]	10 0 0	—	—	Fully paid.
10178	Rhenish Consolidated (lead) [6000 £5 paid, 4178 9s. paid.]	—	—	—	Mar. 1865
50000	Rosa Grande (gold), Brazil [L. £1] [S. E.]	0 7 6	—	—	June, 1866
15000	Ran Pedro del Monte (silver), Mexico [L. £5]	3 0 0	—	—	Jan. 1866
10000	San Roque (lead), Spain	5 0 0	—	—	Fully paid.
15000	South Europe Mining Company, Spain [L. £5]	5 0 0	—	—	Fully paid.
30000	Val Antigua (gold) [L. £2]	0 10 0	—	—	—
6000	Val Ransom (silver, copper, and lead) [L. £10]	5 0 0	—	—	April, 1866
5000	Valdemar Mining Company [L. £20]	15 0 0	—	—	Mar. 1865
50000	Valdemar (gold), Italy [L. £1, £1/2]	0 12 8	—	—	Oct. 1864
45000	Victor Emanuel (copper), Italy [L.]	1 0 0	—	—	Fully paid.
20000	Washoe (gold) [10000 L. £5 paid, 10000 £4 paid]	—	—	—	—
6000	Western Africa Malachite (copper) [L.]	110 0 0	—	—	Oct. 1865.
80000	Worthen (copper), South Australia [L.] [S. E.]	1 0 0	3 1/2	3 1/2	Fully paid.
7500	Yoko Peninsula, South Australia	1 0 0	—	—	Fully paid.